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ABSTRACT

A study applied an ethnography of speaking to the study of a bilingual child, with the construct of a frame as the unit of analysis. The child was observed and tape recorded playing a commercial game in Chinese with her mother and in English with her father. Both activity frames and conceptual frames were analyzed toward answering: (1) what frames were performed during game play; (2) how those frames differed between Chinese and English; (3) what conceptual frames were produced in languages spoken; and (4) how those conceptual frames differed between each language. In brief, an ethnographic perspective was applied toward describing how the organization of activity and language compared between both languages, through the play of a single game. Results indicated that each parent enacted different roles with the daughter during the play of the game. Whereas the mother (with previous game experience) performed an expert-novice role during game play, the father (with lack of experience in game playing) took a novice-expert stance with the daughter. The activity frames and conceptual frames followed accordingly, with the games in Chinese dominated by frames featuring directing and reporting on the part of the mother, while the games in English had the daughter dominating talk with informing and reporting functions of frames. Findings suggest a tight relationship between utterance, its function, and its frame for embedding topic-relationships. This hints at dual activity-conceptual systems among bilingual children, warranting further attention by educators to integrate three dimensions into language classroom instruction: grammar form, speech function, and conceptual contents. (Contains 12 figures, 33 tables, a 112-item bibliography, and function lists for the Chinese game and the English game). (Author/NKA)

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FRAMING GAMES: AN EXPLORATION INTO THE SPEAKING ACTIVITY OF A CHINESE-ENGLISH BILINGUAL CHILD

Thomas J. Nowalk

Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
In
Education: Curriculum and Instruction

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CS 510 113

Framing games: An exploration into the speaking activity of a Chinese-English bilingual child

Thomas Nowalk

(ABSTRACT)

The study applies an ethnography of speaking to the study of a bilingual child, with the construct of a frame as the unit of analysis. The child was observed and tape recorded playing a commercial game in Chinese with her mother, and in English with her father. Both activity frames and conceptual frames were analyzed toward answering (1) what frames were performed during game play; (2) how those frames differed between Chinese and English; (3) what conceptual frames were produced in languages spoken; and (4) how those conceptual frames differed between each language. In brief, the study applied an ethnographic perspective toward describing how the organization of activity and language compared between both languages, through the play of a single game.

The study discovered that each parent enacted different roles with the daughter during the play of the game. Whereas the mother, who had previous experience with game, performed an expert-novice role during game play, the father with his lack of experience in playing the game, took a novice-expert stance with respect to the daughter. The activity frames and conceptual frames followed accordingly, with the games in Chinese dominated by frames featuring directing and reporting on the part of the mother. In contrast, the English games reported the daughter dominating talk with informing and reporting functions of frames. Of the conceptual frames, Chinese presented game objects and events as changes of state; objects were evaluated according to notions of permission and convention. Conversely, English conceptualized objects as independent things existing with attributes, and events as discrete objects with defined spans of time. The study discovered a tight relationship between utterance, its function, and its frame for embedding topic-relationships. This relationship hints at dual activity-conceptual systems among bilingual children, warranting further attention by educators to integrate three dimensions into language classroom instruction: grammar form, speech function, and conceptual contents. As this study demonstrates, bilingual children do much more than talk in two languages.

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CHAPTER I

Introduction to the Study

The conversations examined in this study describe the speech activity of a bilingual child. The child frames experience through the medium of two languages: Chinese and English. In her daily activity with her Chinese mother and American father, she participates in frames of reference that are both linguistic and cultural. She participates in two symbol systems.

Controversy persists, however, over the advantages of being bilingual. At one time bilingualism was described as a handicap, as detrimental to the development of intelligence (Hakuta, 1986). Hakuta traces this belief to present attitudes toward bilingualism: "There exists a persistent belief that for minority children, bilingualism confuses the mind and retards cognitive development" (1986, p. 17). Moll describes what he considers a deficit view to bilingual children, that bilingual researchers and practitioners "uncritically accept ... a limited vision of students" (1992, p. 21). Both writers agree that bilingual education is anchored in an incomplete understanding of bilingual children.

Crawford (1995) admits that basic research into bilingualism is lacking. There is a great deal of uncertainty as to how a bilingual student learns and thinks through the medium of two languages. Hakuta (1990) also calls for more basic research, toward contributing to a more "accurate image of a bilingual child" (p. 19). A study of bilinguals requires much more than a description of two languages occupying a single mind. It requires attention to mind and languages in social contexts (Snow, 1992; Peasz-Alvarez & Hakuta, 1992). Moll's (1992) answer to the gap is for researchers to study more how bilingual children acquire knowledge at home.

The ethnography of speaking is one approach for describing speech activity. The approach is an inductive effort toward recording the activities of speakers within a speech community. The anthropologist Hymes defines the approach as "concerned with the situation and uses, the patterns and functions, of speaking as an activity in its own right" (1974, p. 191). The approach seeks to examine speech in context: how linguistic, cognitive, and cultural dimensions form single speech events.

Hymes (1974) describes the approach as a "contrast within a frame" (p. 192) method. Speakers of different languages may be examined within a set context, their speech activity compared and described. Hymes (1974) suggests a description of the patterns and functions of speech within the framed context. The method highlights the need for greater attention to language not as words and sentences, but language as a dynamic component of human action.

Hymes (1980) argues for applying the approach to bilingual education. The ethnography of speaking presents bilingual learners in all their complexity:

> The ethnographic approach can go beyond tests and surveys to document and interpret the social meaning of success and failure to bilingual education. (p. 117)

What Hymes (1980) points to is research grounded in assumptions that differ from that of the evaluative research cited by Crawford (1995). Hymes' (1980) ethnographic approach builds on

the observation techniques of anthropology, not the experimentalist paradigms of psychology. Thus the ethnography of speaking may be an answer to the basic research gap plaguing bilingual education. It is from this approach that this study describes not necessarily a unique individual, but a dual individual: a child who participates in the activities of two speech communities.

Three perspectives

The bilingual education controversy revolves around a single question: How can two languages exist in a single mind? To the assimilationists who oppose bilingual education, such a condition risks a divided mind: society requires a standardization of thought and language, with schools enforcing uniformity. Citizens of this nation only succeed through the conceptual tools of a single American tongue. Only one frame of reference is necessary: an English language one. Opposed to this, the pluralists who support bilingual education see a bilingual mind as reflective of America's great diversity. The condition of two languages enhances not only thinking, but also a child's grasp of the increasingly diverse society awaiting in the next century.

To date basic research in bilingualism has been largely unable to provide more than fragmented answers to the above question. Traditionally, the answer has been a linguistic one: that two languages exist as two competencies together in the same mind. Linguistics has tended to overlook where those two languages may intersect with other cognitive or social competencies, especially with the mind's conceptual organization. The sociocultural theory of Vygotsky (1996, 1978) has emerged in recent years as providing a more holistic account of two languages in one mind, but has left unclear how mind and language join.

As stated, research into bilingualism has traditionally focused on the linguistic dimensions of bilingualism: bilingualism as a condition featuring dual syntactic and semantic systems. Hakuta (1992), though, criticizes such a view as too narrow; he urges us to look at the whole picture of a bilingual child. Bilingualism encompasses more than two languages in a single mind.

It is this linguistic view of bilingualism that has helped policy makers and opponents of bilingual education. Managing the linguistic dimension through mandating ESL (English as a second language)[1] classes is certainly more feasible than managing the host of factors surrounding LM (language minority)[2] students: poverty, illiteracy, immigration, high drop out rates, and the lack of trained teachers and instructional materials designed for their needs (Crawford, 1997; GAO, 1994). Hakuta would no doubt see actions such as Proposition 227 in California as a narrow solution to a limited understanding of how a bilingual mind works. Hence, Hakuta calls for researchers to examine bilingualism in its complexity, including attention to "theoretical questions about language and cognition" (1986, p. 19).

Macnamara (1985) sees the research problem as tied to a particular component of the linguistic dimension: semantics. He points to an inadequate theory of semantics as preventing the research from finding coherence: "Yet without an adequate theory of semantics, psychology and linguistics (and possibly philosophy) rapidly reach an impasse" (1985, p. 102). With these basic fields of inquiry stuck at the semantic problem, argues Macnamara (1985), research into bilingualism remains stuck, too.

Such a theory may be possible with greater attention to the sociocultural environment surrounding bilingualism, with what Edwards (1994) calls the ecology of language. The

traditional fields listed above focus on the individual person, yet attention to the ecology of language places that person within the complexity called for by Hakuta (1989). Echoing Hakuta (1989), Edwards (1994) notes how the traditional linguistic paradigm has failed "to give sufficient treatment to ecological variables" (p. 138).

One answer proposed toward including ecological variables is a Vygotskian one. A number of researchers, in bilingual education research (Collier, 1995; Cummins, 1994), in psychology (Wertsch, 1991; Bruner, 1986), and in education (Moll, 1990; Tharp & Gallimore, 1988) have adopted or developed Vygotskian approaches to their particular fields. A consensus is now emerging toward a sociocultural paradigm. Researchers in second language learning research (Long, 1990; Fillmore, 1985) are also beginning to recognize the need to account for social and interactive factors in the second language learning. In short, a number of researchers have begun to look at social dimensions connected to the linguistic one.

A Vygotskian paradigm calls for a radical shift, from the individual learner to the learner as but one component in an interactive system. McLaughlin and McLeod note the importance of such a transformation. "These developments are part of a shift away from a structural objectivism and toward a constructivism of meaning and thought" (1996, p. 3). The missing semantic component observed by Macnamara (1985) plays an important role in a Vygotskian model, as part of this constructivism. In addition, the model links the bilingual child to more than school activity. Such a model provides an understanding of the bilingual child in home, peer, and schooling contexts (McLaughlin & McLeod, 1996; Kagan & Garcia, 1992; Tharp & Gallimore, 1988). This is the broad complexity suggested by Hakuta (1989), who sees a strong need for connecting cultural, psychological, and linguistic factors in a coherent framework.

Bruner (1986) warns us, though, that Vygotsky's contribution is only that of a broad framework. Vygotsky (1996) does not tell us exactly how the complexity suggested by Hakuta (1989) takes shape. Vygotsky's (1978) concept of scaffolding has been touted as the means by which mind and language develop in society; by scaffolding the mind develops through regulation by others to regulation within oneself. Regulation enables a young mind to direct activity toward completion. Thought develops from social interaction to conceptual activity. Still, as Bruner points out, "Nowhere in Vygotsky's writings is there any concrete spelling out of what he means by ... a scaffolding" (1986, p. 74).

Wertsch (1991) turns to a contemporary of Vygtosky's. Wertsch believes that Vygotsky established a broad theory of mediated action within a sociocultural theory. Yet Wertsch feels it "ironic" (1991, p. 46) that Vygotsky outlines his broad theory based on his studies of small groups or dyadic interaction. Wertsch (1991) looks for "broader historical, institutional, or cultural processes" (p. 46) to build on Vygotsky's foundation. Toward that aim, Wertsch proposes the Russian semiotician M.M. Bakhtin, whose explanations of such concepts as utterance and voice encompass a more specific outline of how mind and language and culture come together.

To study the complexity of two languages in one mind, Agar (1994) proposes the term languaculture. As Agar describes languaculture:

> The langua in languaculture is about discourse, not just about words and sentences. And the culture in languaculture is about meanings that include, but go well beyond, what the dictionary and the grammar offer. (1994, p. 96)

Agar calls our attention, then, to the patterns of cultural activity repeated daily within a particular culture. It is within those patterns that meaning is enacted in situations, fusing language and mind and society in episodic action. Meaning is an interaction of minds in standard forms of cultural transactions: meeting strangers, eating meals, conducting business, managing home life. Agar (1994) further links his work with that of Whorf (1958), who also connects ways of acting with ways of thinking and speaking.

Agar (1994) proposes the concept of a frame as a unit for studying languaculture. Borrowing the term from artificial intelligence, Agar posits a frame as a means of organizing experience. Actions and words are framed in discourse. Frames both limit what is possible within a context-- what topics of conversation and action are possible-- and provide expected background information. The frame works like a single picture frame in a film, freezing actors and situation in a single scene. Thus, by viewing the frame, we look at a single episode of thought, language, and culture. Frames act like scripts for such episodes, but scripts that are defined within particular languacultures.

For this study, a frame is taken as a unit of conversation that talks about a single theme, as performed within a single context of activity. As a unit of conversation it features talk, but talk as combined with a theme topic and contextual activity. The unit frames talk, topic, and behavior. It is a unit cut from the long stream of speech making up a larger conversation.

Agar (1994) returns us Hymes' (1974) perspective: the ethnography of speaking. Agar (1994) seeks to improve on the approach established by Hymes (1974). Frames serve as the units for an ethnography study of speaking. As Hymes (1974) originally suggested, it is the process of comparing frames that reveals the different patterns of speech activity. Moreover, frames offer something more concrete than Vygotsky's model, yet still meet Hakuta's (1989) call for looking beyond the linguistic dimension.

Research Questions

Should a bilingual child participate in an activity, at one time in one language, and another time in the second language, we should expect to see different frames. It is the same activity, but performed through the medium of two different languages, with each language featuring different conceptual organization of the activity topic. We would find evidence of the conceptual frames embedded within the linguistic frames of the activity.

With the above considerations, toward an understanding of the conceptual and linguistic patterns of a child bilingual in Chinese and English, the following research questions are proposed:

(1) What are the activity frames patterned by the Chinese and English languacultures?
(2) How do the frame structures differ between those languages?
(3) What are the conceptual frames patterned by the Chinese and English languacultures?
(4) How do the conceptual frames differ between those languages?

The above research questions, then, point us toward a partial answer of the larger question confronting bilingual education: how two languages interact within the mind of a single bilingual child.

Introducing the study

The participant for this study was a five-year old bilingual child, who was fluent in Chinese and English. Her first language was Chinese, the language of her mother, her father, the author of this study, is an American who speaks only English to her. She was born in Shanghai, and often raised with the help of elderly Chinese for day care. Her use of Chinese has declined since entering American schools, though she attends classes in written Chinese, learning the many characters that make up the written script, one afternoon a week. Her mother and Chinese friends continue to speak with her in Chinese.

In December, 1995 the father started collecting speech samples through audio taping of the child playing two games: Jenga and Pickup Sticks. The taping continued through January, 1996. A total of eight 90-minute tapes were collected at the time, the game play on each side ranging from thirty to the full forty-five minutes. Half the tapes recorded games played in Chinese, between the mother and daughter; the other half recorded the same games played in English.

For this particular study, the first tape for each language was selected. The reason for choosing the first tape, besides the obvious one of starting with the first, was that the first games featured more apparent negotiation of meaning. The games had recently been purchased as a gift for the child, so the tape records the first games played. Thus the negotiation of meaning recorded includes to some degree each parent establishing the ground rules for each game. It should be noted that the first games were played with the mother, so the games with the father occurred after some previous experience. Part of the father-daughter interaction features the daughter interacting from the previously learned game in Chinese; the father had never played the game before that time.

The tapes were then transcribed according to a system outlined by Agar (1987). Following the transcription, the conversations recorded were divided and cut up into frames: each frame represented a short conversation falling between changes in speech topic and intonation contours. Analysis proceeded first by categorizing and description of the different frames, and second, by recording speech utterances and their grammatical-conceptual frames.

Definitions

For this study the following terms were defined.

Conceptual frames are grammatical patterns that correspond with classes of semantically related words. Conceptual frames do not refer to parts of speech such as nouns or verbs or adjectives, but refer to linguistic features in which word classes are inserted. There is a class of verbs, for example, that can only be followed by an infinitive, featuring the pattern "verb + to _____." To this verb class we may add *plan, hope, intend, manage, expect,* and *like*. This conceptual frame is that of future action: a concept of influencing events that have yet to happen.

A common problem for English speakers learning Chinese is that of the particle "le." **Le** indicates a conceptual frame of a change in state. American speakers of Chinese tend to confuse the particle with the past tense, a conceptual frame more "natural" for American speakers. Thus Chinese may make patterns such as "xia4 yu3 le," (See page 65 for an explanation of numbered tonal markers) roughly meaning raining, but conceptually indicating in Chinese that a changed has occurred: from no rain to rain. As another example, "chi1 hao3 le" expresses a change in state to indicate fullness after eating; the author as an English speaker requires a sense of sequence to explain the change. A Chinese speaker, however, would not feel such a sequence.

Hymes (1974) links such conceptual frames to context, noting the cognitive dimension to the ethnography of speaking:

> The use of a linguistic form identifies a range of meanings. A context can support a range of meanings. When a form is used in a context, it eliminates the meanings possible to that context other than those that form the signal; the context eliminates from consideration the meanings possible to the form other than those that context can support. The effective meaning depends upon the interaction of the two. (p. 194)

This is at the center of Wittgenstein's (1958) philosophy: that concepts need be understood not through the traditional philosophical criterion of truth versus falsity, but by reference to the concept's grammar in ordinary language. Conceptual frames are the cognitive dimension of the languaculture.

Form class refers to the class of words that occupy a single conceptual frame. Whereas the conceptual frame is the linguistic form, the form class is the content: the word items that fill in the frame. Take as an example the speech function permission. The act of permission hinges on the word *can*, as in "You can't do that yet" or "You can see her now." To identify something, though, depends on the copula or BE verb: "That's a blue one." As another possibility, the function obligation depends on modal expressions: ought, should, had better.

Taking the example "You can't do that yet," we see a conceptual frame with *can*: "You can't _____ that yet." To the possibility marked by *can*, one may insert a form class of activity words: *do, try, start, test, trigger*. One may also include a set of symbolizing verbs: *write, mark, color, record, check, letter*. Form classes are not meant here as parts of speech, as in nouns or verbs, but groups or sets of words sharing similar meanings.

Fragmentary utterance refers to an utterance or unit of speech that does not contribute information contents to the conversation topic. Conversation fragments include false starts, incomplete words, and disconnected syllables. These fragmentary utterances carry no real information and so are not included in this study.

A frame is an episodic unit of speaking activity derived from a conversation, centered on a single topic-concept and comprised of a structured sequence of speech functions. Goffman (1974) compares a frame to a single frame within a comic strip: a single scene with actors performing a single act of conversation. Just as a comic strip includes any number of frames, the progression of a conversation includes frames as bounded episodes, each having a beginning, middle, and end. Frames are functional, too, performing an act within a larger conversation of a number of possible acts.

Frame structure refers to a linear sequence of speech functions. Agar (1994) posits a framework of functional speech acts, the contents filled in by the conceptual contents. Key to the frame structure are the speech functions.

Functional speech acts refer to the purpose or task of each utterance within the frame sequence. Functions are described here with a gerund noun marking the purpose of a particular utterance or unit of speech. Some examples: requesting, denying, confirming, reporting. It is the speech function that unites the activity with its cognitive and linguistic dimensions. See the Appendices for lists of speech functions.

Languaculture is Agar's (1994) term for the episodic performance of language and culture in conversation. By languaculture is meant the unity of perception, acting, thinking, and saying in modes of conversation. Since topics of conversation and modes of action differ from culture to culture, languaculture is culturally specific.

Regulatory utterance refers to an utterance or unit of speech by which speakers regulate the performance of speech within a conversation. According to Chafe (1994) regulatory utterances include interactional types (e.g. *you know, you got it, hmm*), cognitive (e.g. *let me see, I know*), and validational (e.g. *maybe, perhaps, I think*). Regulatory utterances allow speakers to edit and control utterances in a conversation, toward bringing about desired outcomes to a conversation.

A substantive utterance is an utterance that conveys information. It includes speech about something: events, referents, activity states. Chafe (1994) describes the substantial utterance as occurring as a single clause, which he defines as a thought unit falling between a rise and fall in pitch contours.

Assumptions

The assumptions for this study are tied to the ethnography of speaking. They include the following:

- Speech is organized within sequential patterns of action.
- Mind is combined with speech within this situated activity.
- The mind of a single bilingual child is representative of the speech community.
- The study results are generalizable to other bilingual children.

We now turn to these assumptions.

Speech is organized within sequential patterns of action. Frames proceed in a linear fashion, from the triggering of the frame through a new topic or initiating speech function such as a question, through the functional structure of the frame, to a closing mechanism. Each utterance within the frame is coherently linked to others through related functions and topic references.

Mind is combined with speech in situated activity. Mind, topic-concepts, and activity converge within each utterance of the frame, the form class as the focal point of that convergence. As members of a speech community participate in the daily tasks and contexts of their environments, they interact in regular patterns with each other, the artifacts of their society,

and with the institutional tasks of their culture. It is this regularity of activity, of engaging in these daily contexts, that conversation is applied.

It is within this public realm, of the daily business of rising and going to work, attending meetings, making phone calls, and returning home in the evening, that we frame concepts. In the conduct of our daily tasks, a range of acceptable topics is permissible. The topics take the form of conceptual frames. The grammar set by the speech functions applies conceptual frames situated within the discourse. We frame concepts, though, with a historically situated conceptual stock of ideas; the very stuff of conceptual systems covering technology, skills, beliefs, and human action.

The mind of a single bilingual child is representative of the speech community. The frames of a culture's languaculture act as frames for indexing experience. They provide a common medium through which communication takes place. Without this common ground established within the frame, communication breaks down. Meaning depends on a shared understanding, a background of expectations that is established through the common conceptual stock and speech-activity patterns of a language. A single mind, such as the one in this study, works through the collective medium. Therefore, any member of the speech community is necessarily representative of the rest.

The study results are generalizable to other bilingual children. This assumption rests on the previous one. Each bilingual child acts and thinks with the combined experience of two speech communities. Though each bilingual child does so through specific conceptual and grammatical patterns, all contend to varying degrees with this dual activity. Bilingualism is participation in two conversation systems.

The Parent as Researcher

As the heading indicates, this study has a number of limitations that should be addressed. Most of these limitations, though, fall under the parent-researcher role. As Bissex sums it up (1980), the strongest limitation is that of the parent maintaining enough distance from what the child is doing to be able to see the activity as a researcher and not as a parent.

Certainly, this is not easily done; Spradley's (1980) definition of the participant observer alludes to the sticky issue of how far a researcher can participate in activity before losing an outsider perspective. Paradoxically, at some point the observer becomes what is being observed.

Naturally, qualitative research has inherent difficulties with subjective experience. Hammersley and Atkinson (1983) point out that

> Even if the influence of the researcher could be eliminated through adoption of the 'complete' observer or 'complete participant' role, not only would this place serious restrictions on the data collection process, it would also in no sense guarantee 'valid data.' (p. 112)

In short, as hard as we try, there is always a great deal of researcher effect. Bias is always with us, too. What Delamont (1990) recommends is more reflective consideration of fieldwork, exposing how the process of investigating is conducted. In this case, the parent-researcher needs

to examine where and how parenting activity may creep into the investigative activity, or vice versa.

Still, there are advantages. The parent-researcher can elicit speech patterns and social behavior impossible with another adult. The parent-research works as an inside-outsider to discover a reality that is privy to the confines of home and family where young children spend most of their waking hours. More importantly, the home ranks as the chief institution for socialization; an insider view of the child in such an environment only balances a research picture that is heavily dependent on what the child does strictly within the confines of school. The parent as researcher, in conclusion, presents a number of unique advantages to child research, but this must include constant reflective practice. The parent as researcher co-constructs frames with the child that would differ from other kinds of social interaction. The danger to validity results from slipping from a parental role, in the natural activity of the game, into a less natural stance of playing researcher.

Delimitations

The study is an ethnographic study of conversation. The information collected on the child is recorded on audiotapes and transcripts for coding and analysis. The qualitative study is exploratory: it compares speech samples of child-parent interaction while the child plays a game with each parent. The study is limited to verbal material in English and Mandarin Chinese. More specifically, the study only examines the substantive utterances of that material as produced in the conversations of a five-year old bilingual child with her parents.

Analytical Framework

Agar (1994) traces his notion of a frame back to the artificial intelligence community, citing the need for a frame unit to program intelligent machines. The original credit for frames may be linked to one of those researchers: Minsky (1981), who defines a frame as "a data-structure for representing a stereotyped situation, like being in a certain kind of living room, or going to a child's birthday party" (1981, p. 96). Expectations of those situations become fused with certain kinds of context clues.

Minsky (1985) was looking for ways to package information into programmable units. Minsky later describes a frame with greater attention to form than an event:

> A frame is a sort of skeleton, somewhat like an application form with many blanks or slots to be filled. We'll call these blanks its terminals; we use them as connection points to which we can attach other kinds of information. For example, a frame that represents a "chair" might have some terminals to represent a seat, a back, and legs . . . (1985, p. 245)

A key feature in Minsky's later description of frame is that of the default assumption. This assumption demonstrates how frames work with but a few perceptual clues: the frame is activated with minimal information. "As soon as you hear a word like 'person', 'frog', or 'chair', you assume the details of some 'typical' sort of person, frog, or chair" (Minsky, 1985, p. 245). Past experience, then, plays a strong influence in Minsky's theory of frames.

The notion of framing certain kinds of information into whole units, through repeated experience with specific contexts, alludes to another term from the artificial intelligence community: scripts. Schank and Abelson (1977) also look toward constructing a smart machine, a machine that can infer scripts from repeated situations. With theoretical complexity akin to Minsky's (1985), they set out to demonstrate how a mind organizes experience. Scripts for Schank and Abelson include the following:

- background information
- role relationships
- script trigger mechanisms
- rules for interaction
- a narrative database of human action

Schank and Abelson (1977) describe human knowledge as composed of scripts, plans, goals, and themes. Each of these depends on background expectations in the form of thematic information about human action.

For Agar (1994), such a description of frames is too limited. Researchers in artificial intelligence work to reduce large data frames to mathematical principles. Such a description is for Agar too tight: even a restaurant context can not easily be reduced to a script. Finding seating and ordering menus can face any number of hurdles. Preferred seats in a nonsmoking section, for example, may not be available. A waiter may have to explain menu items in greater detail, or face a special request on changing a menu item. Each case requires greater negotiation of talk, potentially transforming a more routine social situation into unexpected changes in meaning.

Other social scientists have tried to examine cultural differences through frames. The linguist Pike (1967) looked at segments of activity, each segment having a beginning, middle, and end. Presenting the examples of a football game and a church service, Pike describes such segments as being comprised of functional slots: "for each slot there is a class of segments appropriate to that slot, and actually or potentially observed there" (1967, p. 83). Thus a church service may have functional slots for an opening ceremony, a benediction, a sermon, and community announcements. Each of these, in turn, may be made up of a number of possible slots, too. According to Pike (1967), each slot features the following:

- a class of actions appropriate to the slot
- a beginning, middle, and end
- a perceptual focus (e.g. a tail gate focuses attention on to a coming game)
- actors/participants
- goals/intentions
- segment markers
- irrelevant behavior (e.g. coughing, passing a note, etc.)

Within each slot, Pike (1967) combines language and activity with perceptual processes. Language and action can not be divided in Pike's model of unified action.

Another contributor acknowledged by Agar (1994) is the sociologist Goffman (1974), who spends an entire text explaining how frames organize human social experience. Goffman defines a frame as "organizational premises- sustained in the mind and in activity ...." (1974, p. 247).

Frames organize coordinated events around the actors in those events, their relationships to each other, interpretations of the events, rules for providing restraints, and boundaries for marking the frame. Overall, Goffman (1974) presents a dynamic view of framing, with persons sometimes breaking frames, fabricating frames through deceit or dishonesty, and even clashing over which frame is most appropriate for a situation.

Other anthropologists have contributed to frame theory, too. Bateson (1972) compares frames to mathematical sets, with the frame acting as a class of meaningful acts, and a picture frame, which sets a picture against a bounded background. Bateson (1972) further observes that kinds of frames are common to our vocabulary: "In many instances, the frame is consciously recognized and even represented in vocabulary ("play," "movie, "interview," "job," "language," etc.)" (1972, p.187). In other words, frames are built into our understanding of human action, organizing perception and thought around shared premises, the contents of the frame communicated through a language of category systems (Bateson, 1972).

Hall (1977) presents situational frames as units for studying culture: "Situational frames are the building blocks of both individual lives and institutions" (1977, p. 140). Hall also sees frames as sequences of events, having a marked beginning, middle, and end sequence, with participants engaged in transactions toward completing culturally specific tasks. Similarities among the above authors point to the framework for this study. The following features contribute to an analysis of frames:

- Frames as sequential, with a beginning, middle, and end.
- Frames as bounded structures.
- Frames as the interaction of two or more people.
- Frames as a having clearly defined topics and speech patterns.
- Frames as having interchangeable components.

The general concern is with the use of frames as an analytic tool for studying speaking activity.

Summary of the ethnographic study proposed

Toward answering the question of how two languages occupy a single mind, an ethnographic study is proposed to describe what kinds of frames may appear in the conversation of two languages, both languages engaged in the same activity. The study is descriptive: describing what frames are present in the discourse of two languages engaged in a common activity. The frames go beyond the linguistic dimension traditionally applied to bilingualism. Frames describe how the languages intersect with the mind's conceptual systems.

Organization of the study

This study consists of five chapters. The first chapter introduces the research topic and its means of investigation. Discussed in this chapter is a technique neglected in bilingual education research, but necessary for closing the field's basic research gap. That approach is the ethnography of speaking, which is an anthropological methodology for conducting cross-cultural comparisons of speaking activity. The literature review is presented in the second chapter. The notion of frames parallels a century of controversy over how thought and language merge in activity. The second chapter outlines the historical events that have contributed toward and against a model of mind as situated in activity. Methodology for the study is explained in the third chapter. The chapter reports how the ethnography of speaking was applied to the conversations recorded. The results are listed in the fourth chapter. Implications for educators and directions for future research are discussed in the fifth chapter.

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[1] English as a second language (ESL) instruction covers a broad range of programs. Some include content-based ESL, in which academic content is included with training in English. Others include pull out ESL, in which students are removed from their mainstream classes and taught language skills for a period of time. The pull out programs resemble traditional ESL programs that focus on English language proficiency: grammar-based ESL, which teaches grammar, reading, and vocabulary skills, and communicative ESL, which teaches conversation (Crawford, 1997). Proficiency in English is the focus of any ESL program.

[2] Language- minority - students (LM) are students who come from homes where a language other than English is spoken. Not all LM students necessarily require assistance with the English language. Many are proficient in English. Limited-English-proficiency students (LEP), however, do require language instruction. LEP students includes those learners whose level of English, spoken or reading, interferes with their academic performance (Crawford, 1997).

CHAPTER II

Literature Review

Controversy surrounds all aspects of bilingual education. Political pressure surges from public reaction to bilingual education programs, often forcing public officials to limit support for such programs. Politicized research agendas have produced evaluative research findings both for and against bilingual education programs, and the theoretical positions taken on the interaction of mind and language have clashed throughout the twentieth century. Bilingual education, then, is mired in disputes between scholars, politicians, educators, special interest groups, and the wider public. Though Crawford (1995) points to the need for more basic research to strengthen the field against such forces, Hakuta (1989) suggests that such an effort should be an interdisciplinary one. The solution proposed here is that of an anthropological effort: Hymes' ethnography of speaking, with frames as the unit of analysis. This anthropological approach is both interdisciplinary and sensitive to the contexts surrounding bilingual children. It examines bilingual children as participants in two sociocultural systems.

Political Pressures

When President Clinton set America's education goals for the year 2000, he had in mind American students' international leadership in math, science, and critical thinking. Schools, though, have increasingly had to turn to another problem: students' proficiency in English. Many students now lack proficiency in the academic English necessary for successful schooling.

Nearly 3,000,000 school students speak a native language other than English. Their numbers are expected to grow. Though most of these students are concentrated in six states, notably California, Florida, New York, and Texas, many are now showing up in school districts away from heavily populated or urban areas. Census data lists 533 counties around the United States as having substantial numbers of limited English proficiency (LEP)[1] students: at least 5% of the population or 500 students designated as limited English proficiency (GAO, 1994). Though over 70% of these students are Spanish speakers, many now speak any number of South East Asian languages.

The rhetoric from the Republican led Congress has not always called for support of bilingual education, an endeavor which has become increasingly costly for the Federal government (GAO, 1994). In 1998 the 105th Congress introduced or considered over 17 bills that aimed to directly legislate the English language and its role in public education and government functions. None of these has yet passed.

The New American Citizenship Act (H.R.3341), for example, would require that citizenship applicants demonstrate proficiency in the English language. The National Language Act (H.R.1005), introduced to the House on March 11, 1997, would make English the official language of the United States. Organizations such as US English and English First have been lobbying Congress to pass this legislation. So far, the bill has gathered over fifty sponsors in Congress. Proponents of English Plus stand opposed to such a measure: the organization

advocates embracing America's diversity by supporting both ESL and bilingual education programs. (Lewelling, 1997)

Most threatening to bilingual education, though, has been the English for the Children Act (H.R.3720), which seeks to repeal the Bilingual Education Act passed in 1968. The bill would, if passed, cut off any Federal support for bilingual education. Part of such a measure would be increased support for English as a second language (ESL) and English immersion programs, but bilingual education would no doubt be in jeopardy at public schools.

The passing of Proposition 227 last spring in California indicates growing popular opposition to bilingual education. The Proposition repeals bilingual education in the State of California, requiring language minority students to be placed in ESL programs, or what are officially titled English immersion programs. Proponents of the bill, as does the bill's author, Unz, see bilingual education as depriving language minority students of English language skills. ("What is the real problem?," 1998) Thus, Unz and members of Congress see ESL instruction" as the answer to educating America's growing number of language minority students. King (1997, April, v. 279) attributes much of the anxiety about bilingualism to American perceptions of the Quebec problem, of Quebec's recent but failed resolution to separate from the Canadian union.

As a news article in the San Jose Mercury News ("What is the real problem?", 1998) suggests, the issue is far from decided in California. California voters have opted to legislate the language (Bazley, 1998), but fewer than one-third of the state's language minority students have even made it into a bilingual education program. Wiley (1997) reports this limited availability as being a nation-wide problem, citing the following statistics from the Center for Education Statistics: "Three quarters of limited English proficient students receive ESL instruction, while only one-third to one-half of these students receive any instruction in their native language [bilingual education programs]" (1997, p. 3).

In California and other parts of America, the bilingual education programs that are available often do not reach those who need them. But the programs available are not necessarily bilingual programs[1]: "The lack of precision of this term is, in fact, one the problems faced by researchers in the field" (Casanova & Arias, 1993, p. 17). Compounding the matter further is the national shortage of qualified bilingual education and ESL teachers (Crawford, 1997) and instructional materials (GAO, 1994). Therefore, there is great variation in the kinds of programs available and the quality of instruction.

Lucas and Katz (1994) describe the controversy surrounding bilingual education as divided into two camps: (1) assimilationists, who oppose bilingual education, and thus advocate an English-only stance, and (2) pluralists, who support bilingual education and the use of foreign languages as a valuable resource. Lucas and Katz comment on the intense feelings generated between these two groups:

> The emotional and political nature of the debate between linguistic and cultural pluralists and assimilationists makes it all the more important to gather evidence from research to help in understanding the roles of students' native languages in schooling. (Lucas & Katz, 1994, p. 542)

Only hard empirical evidence can help solve the dispute between the two groups.

Bilingual education rouses strong feelings for and against. Collier (1995) argues that the conflict between the assimilationists and the pluralists rages in part over an oversimplification:

> Much misunderstanding occurs because many U.S. policy makers and educators assume that language learning can be isolated from other issues and that the first thing students must do is to learn English. (Collier, 1995, p.1)

To the assimilationists, the matter has always presented an easy solution: students either learn English through immersion or through ESL cl··ses. Pluralists, however, do not see any easy solutions to the problems facing bilingual education.

Leading bilingual researchers question the effectiveness of ESL for limited-English proficiency students. Krashen (1996) reminds us that ESL is largely instruction in the use of the English language, focusing mainly on conversation. A key component in ESL classes is explicit instruction in grammar and vocabulary.

ESL develops competent speakers. It aims to train nonnative speakers in native speaker patterns of intonation and pronunciation, grammar and sentence construction, and reading and writing skills. ESL has traditionally been linked closer to linguistic theory than pedagogy; throughout much of the twentieth century students have been taught English through formal grammar instruction. When children learn ESL, though, they do not automatically acquire the kinds of language necessary for successful schooling (Krashen, 1996).

Krashen (1992) does not, however, oppose English instruction. He points to the need for matching levels of language proficiency with a child's development (Krashen, 1992). This is where Krashen and other bilingual proponents have often been misunderstood. ESL programs are proposed as but a single method of improving bilingual childrens' chances for successful schooling, not as sole instruction in the English language, but as English instruction combined with content area instruction (Krashen, 1992).

Effective bilingual education programs can actually speed up learning, for literary skills do transfer across languages (Crawford, 1998, Krashen, 1992; Hakuta, 1986). Hakuta concludes: "Reading skills acquired in the native language will transfer readily and quickly to English, and will result in higher ultimate reading achievement in English" (Hakuta, 1986, p. 20). Interacting with English texts within an ESL classroom only enhances the transfer.

Crawford clarifies Krashen further: "Like other researchers in the field, Krashen advocates English instruction from day one in bilingual programs, but at a level students can understand" (Crawford, 1998, p. 2). Successful language learning requires comprehensibility of input. Learners need to comprehend linguistic patterns in multiple situations before producing those patterns (Krashen, 1982). Consequently, comprehending classroom messages depends on learners' levels of proficiency. Without an adequate level of English, though, an all English classroom may even impede a bilingual child's development.

Bilingual education programs facilitate the transfer of content concepts and skills. Krashen (1992) explains how an effective bilingual education program fosters both concept and language development. He offers the following example:

> A limited-English-speaking child who has had a good math background will acquire more English and more math in the English-language math class than the limited-English-speaking child whose math background is poor. (Krashen, 1992, p. 355)

Hakuta (1990) cites further evidence in support of the observation that "in general, the content transcends language" (p. 14). There is also evidence that this transfer of skills is global, that entire conceptual-operational domains or schema cross languages (Hakuta, 1990). Nevertheless, the transfer does depend on first-language literacy and proficiency (Hakuta, 1990).

Cummins (1986), in agreement with Krashen (1992) and Hakuta (1990), models language proficiency along two dimensions. On one dimension Cummins polarizes context-embedded language and context-reduced language. Cummins reminds us that much of daily conversation relies on any number of nonlinguistic signals: gestures, facial expressions, and the suprasegmentals that indicate speech tone or mood. Such communication, Cummins tells us, "derives from interpersonal involvement in a shared reality which obviates the need for explicit linguistic elaboration of the [speech] message" (Cummins, 1986, p. 153). The written language of textbooks, however, lacks many of these cues.

The other proficiency dimension is that of cognitive involvement, with Cummins' (1986) line drawn from that of reduced cognitive involvement, in which comprehension of communication does not require any inference beyond the message contents, to that of the cognitively demanding, which requires some inference to comprehend information communicated. Cummins (1986) pictures this line "in terms of the information that must be processed simultaneously or in close succession by the individual to carry out the activity" (1986, p. 154). In a particular sense, we may think of this as how much a person can attend to, store in short-term memory, and conduct mental operations on.

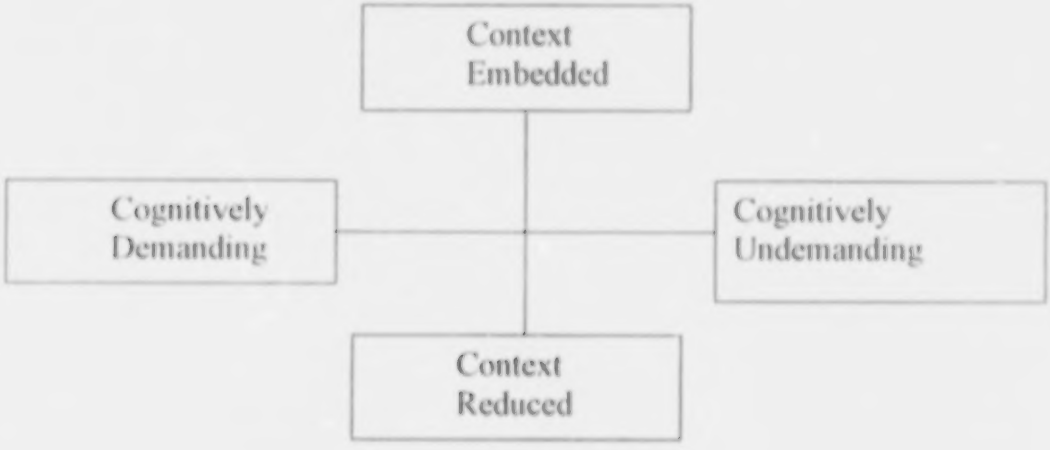

Figure 2.1
Cummins' Model of Language Proficiency

Borrowed from Cuevas (1996)

Cuevas (1996) clarifies Cummins' model of language processing with some examples. In the upper left corner Cuevas (1996) offers an example of a child "reading a story book with a picture" (p. 8). The upper left quadrant may be identified as the narrative quadrant, the quadrant where ample contextual cues aid comprehension.

Much of the focus of ESL instruction falls across that, in the upper right quadrant. Cuevas' (1996) examples include students making requests in the classroom, or responding in rote fashion to a teacher's problem. The quadrant is the zone for social interaction: the kinds of linguistic demands necessary for oral communication. The kinds of classroom activities falling within that quadrant include administrative tasks, peer interaction, and what personal needs a student may need to communicate to a teacher.

Literacy falls within the bottom half of the model. To the right are simple literary tasks, such as filling in forms, writing notes to colleagues, reading labels on bottles. It is the zone for routine literacy: literacy that does not demand thought beyond the execution of the task. The kinds of mental demands necessary for more complex literacy, beyond the routine management of information, falls within the lower left quadrant. Cuevas (1996) lists here reading an essay or writing a dissertation. Successful achievement in school, notes Cummins (1986) requires attention to the kinds of tasks and literacy that are context-reduced and cognitively demanding, however, the popular option of ESL programs tends to keep students in the upper right hand corner.

To sum up, these leading researchers do not share the same assumptions that English-only proponents do. They indicate that ESL programs do teach the English language, often effectively; nonetheless, proficiency resulting from an ESL program refers to fluency in context-embedded language: the upper right quadrant. ESL takes learners to a level where they can communicate with their peers, negotiate meaning on the playground, and perform all the daily administrative needs of the classroom. But it does not instruct students in the more de-contextualized language of schooling. Such an effort falls under the practice of bilingual education.

If Cummins and Krashen were to advise the President on the bilingual education crisis in our schools, they no doubt would suggest making as much use as possible of the students' native languages. Both advise that that which is cognitively demanding, which is abstracted from context, is easier to acquire through the native language first (Crawford, 1997; Hakuta, 1987). Entry into the lower left quadrant is most effective through the native language. Unfortunately, many opponents of bilingual education see this principle as threatening the stature of the English language in America. People in America speak English, or the country falls dangerously close, as President Theodore Roosevelt once quipped, to a polyglot boarding house.

The English language in America is not in trouble (Krashen, 1996). On the contrary, immigrants are eager to learn English, proficiency in English is seen by many as the avenue for success in this country, for themselves and for their children. Bilingual opponents insist, though, that unless these immigrants are placed in English language classes, the country faces possible balkanization. Both researchers would answer, in contrast, that ESL instruction is about making correct sentences and improving accents, not about academic language. Crandall (1985) describes the shortcomings of standard ESL instruction.

> Their [ESL students] seeming communicative competence and fluency are deceptive, although they can talk with their peers, engage in formal conversation with their teachers, read simple narratives, or write informal notes or letters, they are not able to deal with the more abstract, formal, contextually reduced language of the texts, tests, lectures, or discussions of science, mathematics, and social sciences. (1995, p. 6)

So language minority students need much more than the English language to succeed academically, though ESL can contribute toward fluency by providing the social-interactive skills necessary for conducting academic tasks (Cuevas, 1996).

Still another researcher in the bilingual education debate points out a controversy in the field itself. With the heightened politics surrounding bilingual education, much of the research, as previously suggested by Crawford (1995), has been evaluative. Basic research, says Hakuta (1990, 1986), is necessary for tempering the controversy. "Findings from basic research have been given insufficient consideration in the debate on bilingual education despite the fact that the information produced by basic research is crucial to policy considerations" (1986, p. 9). So various groups continue to lobby back and forth over the efficacy of bilingual education. Crawford (1998) predicts, "... the 'what works' controversy is unlikely to subside anytime soon" (p. 3).

The politicized research

Bilingual education research stands heavily politicized. (Casanova & Arias, 1993; Schnaiberg, 1997). The research often involves large-scale efforts bent on answering a single question: Which is better, English-only or bilingual education? Measures, though, of bilingual-bicultural groups tend to lack control over a number of variables, including differences in ethnicity, language proficiency, first language literacy, and program instructional methods. Consequently, the research has both been for and against bilingual education.

Padilla (1990) asks bilingual educators to shift their attention from evaluative concerns to classroom questions.

> Rather than pursuing the timeworn question of whether "bilingual education works," it is important to ask how new educational technologies can be used in the classroom and how instructional features that make use of cognitive-based theories can be made relevant to bilingual and foreign language teachers. (1990, p. 18)

The real problem with bilingual education research, as Padilla understands it, is the lack of coherent paradigm: "a profound lack of theoretical coherence or unity" (1990, p.19). A consensus is missing on how a bilingual learner goes about using two languages. Padilla (1990) raises the question: "How can instruction be designed and implemented that maximizes the linguistic, cognitive and social exchanges between students who come from different home language backgrounds?" (1990, p. 22). Such a consensus requires a paradigm combining cognitive, linguistic, and cultural factors.

Compounding the matter further, research in bilingual education is a relatively new field. Before the Bilingual Education Act was signed in 1968, little research had been done on bilingualism or bilingual education. As Hakuta (1990) and Padilla (1990) already stated, a

coherent picture of the nature of bilingualism is still emerging. Most educators still consider bilingual education a marginal topic of study, and as a result the field lacks talented researchers (Schnaiberg, 1997).

An added reason may be the nature of research into bilingualism or bilingual education: the topic demands an interdisciplinary approach combining psychology, anthropology, linguistics, and educational theory (Edwards, 1994). Kagan and Garcia describe the research as fragmented: "Knowledge is scattered among diverse disciplines: developmental psychology, cognitive psychology, psychology, early childhood education and linguistics" (1991, p. 14). For those researchers more comfortable with questions easily accommodated to narrow and easily controllable study designs, bilingual education is not an attractive area. True experimental designs with randomized sampling are quite difficult considering the number of potential threats that may creep into a study on bilingual education.

Casanova and Arias (1993) come to the same conclusions as Hakuta (1990) and Padilla (1990):

> Several idosyncracies characterize bilingual education as a field of study: the paucity of researchers who must cover a wide interdisciplinary range, the marginalizing of bilingual educational research, and the broad spectrum of language and age levels encompassed by bilingual education. (1993, p. 19)

Drawing a coherent picture of bilingualism involves pulling together a range of social, cognitive, and language variables. For this reason, Casanova and Arias (1993) also see Vygotsky as a useful perspective for integrating "the experiences of children in all learning environments, including the home, the school, and the local community" (1993, p. 28). Moll emphasizes the use of Vygotskian psychology: "One of the most interesting and important contributions of Vygotskian psychology is the proposal that human thinking must be understood in its concrete social and historical circumstances" (1990, p.319). Casanova and Arias (1993), Hakuta (1990), and Padilla (1990) all point to a Vygotskian paradigm as an answer to the idiosyncracies plaguing research into bilingualism.

The politics surrounding bilingual education and research has demonstrated another bias: what groups of bilinguals are appropriate to study. Research is also necessary for examining bilinguals from other language groups (Schnaiberg, 1997). With over 70% of the bilingual population in America speaking Spanish and English, a strong need has existed for research into bilingual education for that group. Yet with the growing number of Chinese and other Asian speakers coming to this country, the need arises for attention to these groups as well. Even the Deep South today is facing large increases in Asian immigration. USA Today ("New Face of the South," 1998) reports US Census Data showing a 70% population increase for Georgia, 62% for North Carolina, 49% for Tennessee, and a 50% jump for Texas. In other words, these traditionally conservative states are seeing increasing numbers of Chinese, Japanese, Korean, Taiwanese, and Vietnamese arrivals.

With the rising numbers of limited English proficient children now arriving at our schools, at a time when school reform is a priority at the nation's highest offices, a basic understanding of the nature of bilingualism is critical. At a time when, as Collier reminds us, "... we are still struggling to identify the most effective education practices" (1995, p. 1) a

portrait of the social and cognitive dimensions of bilingualism could clarify to educators and policy makers how languages and minds come together in the schooling institution.

If LEP and LM students are to develop the level of critical thinking necessary for reaching the National 2000 goals, a new understanding of bilingualism must combine language and thought in society. It requires a service beyond the capabilities of the ESL classroom. If we as educators are to answer the President's call for preparing today's school children for tomorrow's demands, the basic research called for by Casanova and Arias (1993), Hakuta (1990) and Padilla (1990) will be essential.

Theoretical controversy

Controversy has also surrounded the theoretical principles necessary for a study of bilingualism. Four theoretical controversies have taken place during the twentieth century. It has been popular practice to dichotomize the controversies, such as that of Vygotsky's (1978) social child versus Piaget's (1926) egocentric child, or of Chomsky's (1968) innatism versus Skinner's (1958) behaviorism. Wittgenstein, too, has been dichotomized: the early positivist Wittgenstein (1958) versus the later social Wittgenstein (1958). But as the following chart indicates, each of the participants in these controversies is not easily placed.

	Theory	View on Mind	Role of Society	Nature of Language	Role of Science
Chomsky	Cartesian linguistics	Independent conceptual domains	Limited- strong innatist stance	Abstract rules of grammar	Deductive: to arrive at abstract, universal principles
Piaget	Constructivist	Sensorimotor schemas & mental operations	Interactive role- influence on equilibrium	One of many symbolic systems	Inductive: observation
Skinner	Radical behaviorism	No causal role: mind as behavior	Strong role: evolutionary perspective	Mediational tool, functional in activity	Inductive & experimentalist
Vygotsky	Socio-cultural	Mind as social medium	Strong role: mind as social	Serves a regulatory role	
Wittgenstein	Language-games	Mind as social medium	Strong role: mind as social	Conceptual tool	Descriptive

Figure 2.2
Theoretical positions of the participants in the mind-language debates.

Each of the participants does agree that human activity within the natural and social world is organized, there is a coordination of acts or episodes or mental representations that

somehow frame an activity. Where that coordination is derived from, though, has depended on the theoretical perspective. While Skinner, Vygotsky and Wittgenstein have looked toward society, Chomsky and Piaget have looked to mental representations and their abstract systems.

The first dispute was more an effort toward revision than controversy. In 1927 Vygotsky (1996) set out to modify principles of language and development proposed by the young Piaget (1926). Vygotsky's (1996) purpose was to rework those principles within a Marxist-dialectical framework, toward establishing a science of psychology that served the then developing Soviet Union.

Vygotsky's theory is rooted in a socio-cultural explanation of human action. Emphasizing Hegelian dialectical change, Vygotsky's theory rests on a single law of development: "... children begin to use the same forms of behavior in relation to themselves that others initially used in relation to them" (Vygotsky, 1981, p. 157). Through the social interaction with caretakers, children gradually internalize the relationships by which adults originally had toward them.

Language for Vygotsky (1978) constitutes the medium of this internalization; it is through language and the functions language takes that external relations are transferred onto the mental plane. "All the basic forms of the adult's verbal social interaction with the child later become mental functions" (1981, p. 163). Therefore, change moves from the outside in.

Acquiring the social mind extends as a long process over a number of developmental events (1978, p. 57). Vygotsky describes the process as one of "reconstruction" (1978, p. 57); tools, activity, and their corresponding social relationships are gradually reproduced on the level of an individual mind. The functional relationships of the people and objects surrounding the individual child are slowly internalized as mental operations. In short, cultural activity is assimilated as the strategies of thought.

By far the most powerful of those developmental events is the convergence of speech and thought, originally two parallel systems which become fused in the mind of the older child:

> The most significant moment in the course of intellectual development, which gives birth to the purely human forms of practical and abstract intelligence, occurs when speech and practical activity, two previously completely independent lines of development, converge. (Vygotsky, 1978, p. 24)

Speech, according to Vygotsky, gives the child the power to plan and regulate his or her world. This new ability for the child follows the law stated above: the child uses speech to regulate and interact with surrounding objects and people, then gradually can regulate and interact with objects on the mental plane.

Vygotsky claims that it is this planning function of speech that facilitates the development of higher mental processes (1978). Yet speech originates from its social use; speech as communication is gradually transformed to speech as expression of thought through regulation. The power to regulate, then, grows out of the power to communicate. It is on this point that Vygotsky sought to revise Piaget's (1926) model.

Piaget (1926) models a dichotomy of language functions. There are first the egocentric functions that Piaget (1927) identifies as characteristic of young minds. Beginning with repetition, then moving to the monologue, the young child speaks for simple pleasure of

speaking; no effort is made to connect the sounds made with those around him or her. The collective monologue is that function that occurs when speech sounds are made in the presence of others, but no effort is made to influence others through the medium of speech.

It is when the child makes an effort to be understood, to communicate his or her view through other perspectives, that socialized speech begins (Piaget, 1926). The autistic condition of living confined within a single perspective gives way to the need to coordinate and adapt ones needs to other's. Piaget (1926) places special emphasis on criticism: when a young child imposes their values on others, a greater explicitness and clarity is necessary for expressing speech. Piaget (1926) lumps the more instrumental functions together, so commands and requests are combined within a single category.

Language Functions

Ego Centric			**Socialized**			
Repetition	Mono-logue	Collective Mono-logue	Adapted Inform	Criticism	Command /Request/ Threat	Questions/ Answers
Repeat syllables and words, e.g. child gibberish	Thinking aloud	Talk about the self with others present	Exchange and adapt talk to other views	Talk on the work and status of others	Talk to cause action	Inform and explain actions

Figure 2.3
Piaget's language functions

The question for Piaget is how egocentrism and socialization influence each other. Egocentrism is, for Piaget, "an illusion of perspective" (1926, p. 268). And it is an illusion that persists to some degree throughout life. "It is a spontaneous attitude which, at the beginning, rules the child's psychical activity and which persists throughout life during periods of mental inertia" (1926, p. 271). But egocentrism decreases over time, as children learn to adapt to other points of view, in greater coordination of their point of view with others (1926). As the schemes and habits of mind develop greater coordination with other minds at increasingly abstract levels, the adult mind emerges. The illusion, however, never entirely disappears, but it is greatly diminished through dialog, argument and interaction with other minds.

In his revision, Vygotsky focuses on the origins of the functions of language. While Piaget emphasizes the autistic inclinations of the child mind, Vygotsky places the child mind firmly within social context, as an active, participating agent even before the onset of speech (Vygotsky, 1978). Vygotsky further contests that egocentrism is but a byproduct of development that serves no real purpose in development. As Piaget (1926) describes it, egocentrism imprisons the child within the confines of his or her own perspective, an illusion that accompanies thought throughout life. For Vygotsky (1978) egocentric speech paves the route for inner speech.

In summary, Vygotsky's revision reverses Piaget's scheme:

> The primary function of speech, in both children and adults, is communication, social contact. The earliest speech of the child is therefore essentially social. At first it is global and multifunctional; later its functions become differentiated. At a certain age the social speech of the child is quite sharply divided into egocentric speech and communicative speech. (1996, p. 35)

Egocentric speech is not deleted from Vygotsky's explanation. It is given an important intermediary function, transferring social language from communicative activity to mental activity.

Wittgenstein's controversy takes the form of a personal conflict. Whereas the Austrian philosopher formerly advocated a mentalistic explanation, the later Wittgenstein criticizes mentalistic notions of language and thought. In his own words, Wittgenstein says:

> The phrase "to express an idea which is before our mind" suggests that what we are trying to express in words is already expressed, only in a different language; that this expression is before our mind's eye, and that what we do is to translate from the mental into the verbal language. (B.B. p. 41)[1]

Wittgenstein wants to dispel the "temptation to think that there must be" some mental processes independent of the verbal expression (B.B. p. 41).

For Wittgenstein, there ultimately is no private language: even our innermost thoughts and words are within the bounds of the public domain: "An 'inner process' stands in need of outward criteria" (P.I. 581). As Emeling describes it, "thinking or speaking for oneself is parasitic on public language and is something one has learned while learning language" (1993, p. 349). We must look to the outer context: "Try not to think of understanding as a 'mental process' at all.- For *that* is the expression which confuses you. But ask yourself: in what sort of case, in what kind of circumstances ..." (P.I. 154). Language superimposes the public, cultural domain onto the inner mind. Meaning is found not simply in the head, nor in behavior, but in the standard conventions and customs by which we use language.

Toward establishing his later theory of meaning, Wittgenstein calls our attention to the use of words, the meaning found within the activity of their use. Wittgenstein explains: "Every sign by itself seems dead. What gives it life?- In use it is alive" (P.I. 432). With use a word performs a function: "The function must come out in operating with the word. ((Meaning-body.))" (P.I. 559). To this, Wittgenstein would add: "Language is an instrument. Its concepts are instruments" (P.I. 569). To understand how concepts mean, then, we must examine cases and contexts for word use. We must look to what the word does in speaking.

But words here, unlike in the earlier Wittgenstein, do not have direct, single correspondences with objects: a plurality of uses in a plurality of contexts help us to learn about

[1] B.B. refers to the Blue and Brown Books (1960). This text is the only one of Wittgenstein's referred to here with page numbers. The other reference here, the Philosophical Investigations (1958) includes the paragraph number. Most of Wittgenstein's writings were assembled as series of numbered paragraphs.

the concepts indexed by words. Words are, for Wittgenstein, the tools that help us to comprehend concepts:

> Think of the tools in a tool-box: there is a hammer, pliers, a saw, a screw-driver, a rule, a glue-pot, glue, nails and screws. The functions of words are as diverse as the functions of these objects. (And in both cases there are similarities.) (P.I. 11)

Yet words are not simply used in this perspective. Words are used according to the social conventions and customs of a culture (P.I. 355). Words constitute a form of life (P.I. 19).

Close to the concern with word use is Wittgenstein's attention to grammar. A rule, too, has use in language, acting as a "sign-post" (P.I. 85), indicating by which route a speaker uses certain words. The connection between the sign-post and the use is indicated by a behavior:

> Let me ask this: what has the expression of a rule- say a sign-post- got to do with my actions? What sort of connexion is there here?- Well, perhaps this one: I have been trained to react to this sign in a particular way, and now I do so react to it. (P.I. 198)

Like the use words, though, rules of grammar are not simply used: there are conventions to their use, customs through which speakers display standard speech forms.

The concept of rule is a pluralistic one: there are a number of conventional uses. "To obey a rule, to make a report, to give an order, to play a game of chess, are customs (uses, *institutions*)" (P.I. 199). Schulte further clarifies: "One learns to follow the rule by being habituated to certain reactions and procedures so that one can perform them automatically" (1992, p. 117). So rules do not govern our behavior deterministically. Rules set limits.

Rules share a close relationship with agreement (P.I. 224). For the rules to work among speakers of a language, there need be established agreement over what the linguistic pattern may be, how the accompanying behavior is enacted, and how meaning can be assigned based on the criteria of the first two conditions. We are reminded, again, that "obeying a rule is a practice" (P.I. 202). Richardson describes criteria as evidence, public evidence by which speakers determine word meaning (Richardson, 1976).

All that has been discussed thus far points to episodes of activity that Wittgenstein terms the language-game. "Here the language-*game* is meant to bring into prominence the fact that the *speaking* of language is part of an activity, or a form of life" (P.I. 23). Washington describes language-games:

> Language-games are created, persist, change, disappear, reappear, interact and sometimes conflict with each other. Language games extend from the simple such as: a greeting, a salute or a child's game such as "ring around the rosie," to the strings of language-games which are found in theoretical physics." (1990, p. 8)

As forms of life, language-games themselves follow conventions and customs embedded in the daily activity of a culture. Language-games unite discourse and activity.

Some examples of language games listed in Investigations include cursing, giving orders, reporting events, guessing riddles, solving math problems, and translating languages. (P.I. 23).

Moreover, each game has a beginning, middle and end. "The game, one would like to say, has not only rules but also a point" (P.I. 564).

Central to the game concept is that of what Wittgenstein calls family resemblances. As concepts are examined through the use of words in language games, certain similarities and intersections arise among the various cases of a word's use:

> I can think of no better expression to characterize these similarities than "family resemblances"; for the various resemblances between members of a family: build, features, color of the eyes, gait, temperament, etc. overlap and criss-cross in the same way - And I shall say: 'games' form a family. (P.I. 67)

A single concept indicates not simply a generalization to Wittgenstein, but a family of related words, as demonstrated through the various uses of the word referring to the concept. Concepts, word use, grammar conventions and language-games combine episodically as the customs by which language speakers think and act.

Research by Rosch (1973a) lends empirical support to Wittgenstein's idea of family resemblances. Rosch reports an experiment done to test the internal structure of categories, which she describes as how close examples or cases of concepts come to a central, core meaning (1973a). Rosch found support for students consistently structuring categories along continuums of strong to weak examplars. The students consistently ranked examples of cases along similar orders from strong to weak representation. Rosch and Mervis (1975) report further support for Wittgenstein's notion of family resemblances. Rosch and Mervis discover that "the more an item has attributes in common with other members of the category, the more it will be considered a good and representative member of the category" (1975, p. 582).

Rosch and Mervis (1975) find empirical evidence for what Wittgenstein took thirty years of internal dialog to decide: that how we know and how we communicate depend on concepts that have no clear cut boundaries. The early Wittgenstein (1958) embraced the long philosophical tradition of exploring concepts and language as having neat, definable boundaries to which truth or falsity can be applied. The later Wittgenstein, on the other hand, looks at conceptual boundaries not as fixed, but as fuzzy, their only proofs being found within the conventions of ordinary language.

The Chomsky-Skinner controversy, which took place eight years after Wittgenstein's passing, featured a review written by the linguist Noam Chomsky in 1959. The article critiques Skinner's Verbal Behavior. The review so successfully criticized Skinner's model of language that it would become the only reference to what Skinner had to say about language. Sparzo observes that "many more people have read the review than the book" (1992, p. 231).

Buzzing with rationalism, the second half of the 1950's was an era that Gardner would describe as the rediscovery of mind (Gardner, 1985). Mind was rediscovered in the form of conceptualization: Bruner, Goodnow and Austin (1956) provided a model of categorizing that would help explain the workings of mind. And mind was also rediscovered as a computer program. Newell, Shaw and Simon (1958) would merge mind and machine in a theory of human problem solving: "Our position is that the appropriate way to describe a piece of problem-solving behavior is in terms of a program" (1958, p.153). This is also the climate in which Minsky

(1985) started his work on artificial intelligence, work that eventually lead to Minsky's idea of frames: frames as a means of programming an intelligent machine.

Chomsky's first contribution to the rationalist swing was published in 1957, titled Syntactic Structures. In the mechanical spirit of the cognitive revolution, Chomsky describes a grammar as a device, a mechanism that produces grammatical sequences of words (1957). For such a device to work effectively, argues Chomsky (1957), it must have the capacity to distinguish grammatical from ungrammatical sentences in a language. The chief aim of linguistics is to determine how such a device may work.

But Chomsky (1957) first argues for the independence of grammar. "I think that we are forced to conclude that grammar is autonomous and independent of meaning, and that probabilistic models give no particular insight into some of the basic problems of syntactic structure" (1957, p. 17). Chomsky does accept that meaning has some connection to grammar: "It is, of course, impossible to prove that semantic notions are of no use in grammar." (1957, p. 19) Meaning is not ruled out. Chomsky does, however, insist that for the linguist to describe the grammar machine, grammar need be pried apart from all the behavioral noise surrounding grammatical sentences. The autonomy of grammar remains as the central principle in Chomsky's model (1984).

That model is a Cartesian one. Chomsky affirmed his Cartesian roots in 1966 with his Cartesian Linguistics, proposing a Cartesian model of language that is grounded in a creative principle: the mind can generate an infinite number of sentences with finite means. To explain how such a mechanism works, Chomsky maintains two distinctions. The first is the construct of deep structure, where thoughts converge with language, filling in the contents of a sentence; and the construct of surface structure, where linguistic signals take their final form as the soundings of a language. For Chomsky, the deep structure is really an assembly of propositions: "It constitutes an underlying mental reality" (Chomsky, 1966, p. 36).

The other distinction, largely developed in other texts, is that of competence versus performance. Chomsky clarifies what the concern of the linguist should be, in pursuing a mentalistic description of grammar:

> A record of natural speech will show numerous false starts, deviations from rules, changes of plan in mid-course, and so on. The problem for the linguist, as well as for the child learning the language, is to determine from the data of performance the underlying system of rules that has been mastered by the speaker-hearer and that he puts to use in actual performance. Hence, in the technical sense, linguistic theory is mentalistic, since it is concerned with discovering a mental reality underlying actual behavior. (1965, p. 4)

Thus the linguist aims to account for both the deep and surface structures of a language, not to explain what people actually say. Linguists work to construct a theory of competence, not performance. The concern is with the underlying language principles in speakers' minds.

The attention to the grammar machine theorized in Syntactic Structures would shift to that of a language organ in the later Chomsky (1984). Chomsky would place linguistics within cognitive psychology, as the study of but one faculty of knowing: language, among many faculties. For Chomsky (1984), cognitive psychology is the study of mental representations and their operations as computations. The study of the language organ in terms of a universal

grammar, the faculty of language with its syntactic, semantic and phonetic representations, emerged as the new mission of the linguist. The autonomy of syntax and the need for a grammar to distinguish grammatical from nongrammatical sentences in a language has remained, but in more Cartesian terms.

Chomsky (1984) argues for a modularity of mind. Different domains of knowledge, or linguistic competence, all innately designed and organized according to domain-specific principles, make up a chorus of modules all contributing to a single mind. And with respect to their ontogeny and their status as a field of inquiry, these modules of mind are postulated along the same lines of the physical organs of the body, each organ self-contained and performing its own innately specified functions, but contributing toward a greater metabolism. Besides language, to name a few examples, are the visual system, the auditory system, conceptual systems, and others.

Before discussing Skinner's position, it should be necessary to clarify some of his basic principles. Skinner's radical behaviorism has been greatly distorted and misunderstood (Jensen & Burgess, 1997; DeBell & Harless, 1992; Cook, 1993; Sparzo, 1992). Skinner has been accused, for example, of being a black box theorist; however, Skinner (1982b) applies to private events the same principles that govern behavior in general. What Skinner (1982b) disputes is the Cartesian dualism of mind and body.

More importantly, Skinner (Sparzo, 1992) is not a stimulus-response psychologist. Skinner sees our previous experience as mediating present events. People are not passively acted upon by the environment. People react to changes in the environment in regular patterns of activity, and these patterns have consequences that affect the behavior's future outcome.

Sparzo (1982) offers an acronym toward explaining Skinner's episodic principle. The acronym Sparzo suggests is ABC (Sparzo, 1992, p. 228). By A is meant the antecedent events, or changes in the environment. B refers to a behavior linked to those changes. Skinner reminds us that the temporal sequence is not always immediate; a stimulus may lead to a behavior separated in time (Skinner, 1982). The C portion is the consequences of the behavior. Skinner (1957) describes activity episodes as featuring a functional unity. The three components coherently fuse as concerted action.

This functional unity is central to Skinner's (1957) theory of language behavior. Skinner defines verbal activity as "behavior reinforced through the mediation of others" (1957, p. 2). Skinner adds that we need to look at the entire verbal episode, the interaction of speaker and listener in a single package of action. If grammar has a role to play in this, it is subordinated to the activity of the episode. And meaning plays a more central role in this model: "Meaning is not a property of behavior as such, but of the conditions under which behavior occurs" (1957, p. 14).

Within a speech episode, Skinner posits a functional unity between speaker and listener. Skinner (1957) lists the following language functions:

- Mands are instrumental functions that refer directly to their outcomes.
- Tacts are informative functions that refer specific events or object features.
- Echoic functions are repeated segments meant to reproduce speech.
- Textual functions are those that communicate through printed messages.
- Intraverbal functions are interpersonal functions for social interaction.

- Autoclites are grammatical functions necessary for regulating speech.

Like the later Wittgenstein (1958), Skinner (1957) presents a functional model of language. Skinner (1957) rejects any mentalistic explanations of language. He calls our attention to the episodic patterns of speech activity.

Skinner's taxonomy of language functions

Mands	**Tacts**	**Verbal**		
		Echoic	**Textual**	**Intraverbal**
Requests Commands Questions Advice Warnings Calls to action	Metaphors Metonyms Malaprops		Printed material Dictation	Social formulas Association chains Counting

Skinner (1957)

Figure 2.4
Skinner's Taxonomy of Language Functions

Skinner notes that "there are verbal responses still to be accounted for-- responses such as *if, that, as, therefore,* and *some-* many of which strongly suggest the behavior of a directing, organizing, evaluating, selecting, and producing system" (1957, p. 312). That is, there is a controlling system implicated, and that controlling system is itself behavior. To this Skinner assigns the term autoclite, meaning self-styling, of which grammatical relations are an important part.

Skinner (1957) also ties the autoclites to the mind's ability to self edit speech, an important regulating function by which a speaker revises speech forms through more effective co-ordination with other speakers. Echoing Vygotsky's principle of development, Skinner notes that "a person controls his own behavior, verbal or otherwise, as he controls the behavior of others" (1957, p. 403).

Among the autoclites Skinner (1957) lists the descriptive autoclite, which is necessary for qualifying speech, with the help of such phrases as "I guess" or "In other words." Relational autoclites refer to grammatical relations such as word order and case relations. The manipulative autoclites include simple conjunctions such as *and* or *but*, and the adverbial conjunctions: *moreover* or *consequently*." The organizing and regulatory role of speech is enabled through the autoclitic devices.

A term used by Nilsen (1977) may help clarify the autoclite. Nilsen suggests the word operator. Operators include grammatical morphemes: the past tense marker, -ed, for example, or function words such as articles or prepositions, and word order. Naturally, there may be a combination of these operators, say word order and morphemic marker, to indicate grammatical relationships. As Skinner points out, operators signal meaning through conventional application

of grammatical makers. Though Skinner's examples are in English, the highly inflected forms of such European languages as Russian, for example, would rely more on noun cases for their operators; or Mandarin Chinese relies on adverbial operators to mark time relationships. Operators generate grammar according to any of the autoclitic types discussed by Skinner.

None of this explanation was accepted by Chomsky (1959). Chomsky's (1959) general charge against Skinner (1957) is that he is not doing science. He is engaging in establishing a taxonomy, but he is not explaining behavior. Skinner's account of language can not be taken seriously, for it makes no improvement on previous scientific theories of language. Chomsky (1959) reviews many of the concepts germane to Skinner's analysis, concluding that "if we take his terms in their literal meaning, the description offers no improvement over various traditional formulations" (1959, p. 574). In brief, Skinner offers nothing new for a study of language.

This scolding of Skinner impressed the minds of many a linguist, and few if any would consider it worthwhile to read a text on language written by a supposed S-R psychologist whose terminology was determined to be hidden explanations of more traditional linguistic explanations. Skinner himself remained silent about the controversy, which may have further convinced people to avoid the text. Of the rare time when Skinner (1982a) did respond to Chomsky's charges, Skinner simply stated that he had been misunderstood. Certainly, Skinner's functional explanation of language as organizing episodes of social or mental activity shares little in common with Cartesian linguistics. Chomsky removes linguistic competence from its social contexts toward conducting a more scientific investigation, describing it instead as a system of abstract principles following a universal logic written in our genes.

Unlike the other controversies, the fourth one actually included a face to face meeting of the participants. In October, 1975, Chomsky met with the man who started the language controversies so many decades before: Jean Piaget. They met at the Abbaye de Royaumont, near Paris, and argued over another way to dichotomize the language and mind relationship: innatism versus constructivism.

Prior to the symposium held at Royaumont, Piaget and Chomsky recorded their views in advance. Piaget (1980) wrote first, describing his psychogenesis of knowledge and its epistemological significance. In his remarks, Piaget (1980) first contrasts his views with other rival positions: empiricism's claim that knowledge is merely perception and the innatists claim that knowledge is hardwired from birth. To the empiricists, Piaget would state his position of knowledge as activity: "Knowledge proceeds from action, and all action that is repeated or generalized through application to new objects engenders ... a 'scheme,' that is a kind of practical concept" (1980, p. 24). Piaget (1980) describes the innatist position as preformation. He sees preformation as logically unsound, implicating that knowledge could be traced back through phylogenetics to such simple life forms as the amoeba.

Like Skinner, Piaget (1980) places the heavier emphasis on organized activity within an environment, genetics having a minor role in development: "... the origin of logico-mathematical structures in their infinity cannot be localized either in objects or in the subject" (1980, p. 26).

Piaget holds two mechanisms responsible for development of the logico-mathematical structures. The first is that of reflective abstraction, which opens up new correspondences on a higher level; Piaget describes this as a reorganization of concepts on higher levels, successive reorganizations becoming more abstract. Its twin mechanism, constructive generalization,

"corresponds to empirical abstraction" (1980, p. 28). Piaget notes that this process moves from a condition of few cases to most cases.

The second document circulated in advance of the meeting at Royaumont was that of Chomsky's (1980) reply to Piaget (1980). To Piaget's first argument that mutations in phylogenetic history could not possibly have lead to a language faculty, thus negating the innatist position, Chomsky replies:

> Although it is quite true that we have no idea how or why random mutations have endowed humans with the specific capacity to learn a human language, it is also true that we have no better idea how or why random mutations have led to the development of the mammalian eye or the cerebral cortex. (1980, p. 36)

Again, for Chomsky (1980) physical organs are comparable to mental organs: faculties of mind are subject to the same laws of selection as the mind.

To Piaget's (1980) dismissal of innatism as a rival explanation, that constructivism can explain language without recourse to an innate language faculty, Chomsky (1980) also disagrees. Chomsky's response is that language can not be explained through the action of sensorimotor structures. Here Chomsky (1980) quotes from the philosopher David Hume, in saying: "In all of these cases we are, it seems, dealing with knowledge that derives 'from the original hand of nature,' in Hume's phrase- that is, 'innate knowledge" (1980, p.48). In concluding his reply, Chomsky restates the position he would insist on throughout the symposium: "No specific proposals exist, to my knowledge, concerning such 'generalized capacities,' and it does not seem very likely, to me at least, that the linguistic properties in question reflect construction of sensorimotor intelligence or the like" (1980, p. 48).

As the proceedings got started, Piaget addressed Chomsky's opening remarks on what would be called the fixed nucleus: the innate capacity to produce grammatical utterances. Piaget again notes his agreement with Chomsky of the rational origin of language and the similarity between his and Chomsky's positions on transformations.

The fourth controversy disputes the nature of the fixed nucleus of the mind. Whereas Piaget (1980) sees the fixed nucleus as dynamically interacting with the environment through the mechanisms of equilibration or autoregulation, Chomsky's (1980) version of the fixed nucleus is that of a stable, fixed, mechanism that is only triggered by the environment. Piaget (1980) sees the fixed nucleus dynamically, taking shape through senorimotor intelligence: "These structures could not be formed by an exact and detailed adaptation to reality" (Piaget, 1980b, p. 59). Piaget (1980) reminds us that he does accept some innate features to cognition, but what is innate to Piaget (1980) is that of the functioning, while structures are developed by accretion through the mechanism of autoregulation. But for Piaget, human intelligence speaks of a power far greater than any innate mechanism could explain.

With his Kantian heritage, Piaget looks upon mind as the lawgiver of nature, a mind of schemes and operations that both transform the environment and are in turn transformed, by objects and events in the environment. The schemes and operations of mind frame transactions with the environment, leading to changes that alter the schemes and operations themselves.

With his Cartesian heritage, Chomsky looks upon the mind and its faculties as the only object by which we are certain, the distant and chaotic stimuli of the environment only become

manageable through the action of innate structures, structures that impose order through the power of reason. If Chomsky has any room for frames in his theory, they would have to be innately designed frames, structuring the external environment through coordinated systems of mental representations. Experience would be framed, then, from the inside out.

Summary of the controversies

This chapter highlights the controversies surrounding bilingual education. The current debate over bilingual education points to at least one principle of which we can be certain: perceptions of languages are tied closely to perceptions of those who speak those languages (Edwards, 1994). Debate over language status and bilingualism is essentially an issue of ethnicity.

To this debate looms a single research finding (Crawford, 1998; Hakuta, 1989): that bilingual students do better at school through literacy in the first language. In other words, when considering Cummin's (1986) model, achievement in the lower left quadrant is tied to first language literacy. Instruction in ESL is not designed to assist students with the cognitively demanding, context reduced topics and printed materials of schooling. Opponents to bilingual education insist, though, that ESL instruction is the fastest route to acquiring the school language described by Cummins (1986).

Political forces and public opinion have imposed pressure on researchers, not necessarily to continue producing the kinds of large-scale evaluative studies that have been tried to test the efficacy of different programs and methodologies, but to look further into the condition of two languages in one mind. The need exists for what Edwards (1994) and Hakuta (1989) describe as an interdisciplinary effort; basic research demands a combined perspective on mind, language, and society.

What the current political and ethnic forces are suggesting is the need for an understanding of bilingualism grounded in principles advocated by Vygotsky, Skinner, and Wittgenstein. It is the bilingual mind as situated in activity, in mediated action with organized episodes united by functional relationships, that should be the focus of our attention if we are close the gap in basic research. Hymes' (1974) ethnography of speaking offers the investigative tool for examining these principles.

Proposing an anthropological solution

Hymes' (1974) ethnography of speaking is an anthropological solution to the theoretical controversies reported. Skinner's episodic behavior, Vygotsky's mediated action, and Wittgenstein's socially embedded language acts come together within an ethnography of communication. Just as Hymes focuses on language as a means for social action (Gumperz, 1982), Vygotsky and Wittgenstein similarly propose the analogy of language as a social tool. Hymes (Gumperz, 1982) shares another point in common with these three writers: that socio-cultural knowledge is performed or enacted through functional speech acts (Gumperz, 1982). In short, speech events are contextual, episodic, functional, and reveal the minds of actors.

A contemporary of Hymes, Gumperz (1982), also looks to placing language within a wider context, but looks at the frame unit with caution. Frames tend to imply static samples of social interaction:

> The term is used to emphasize that, although we are dealing with a structured ordering of message elements that represents the speaker's expectations about what will happen next, yet it is not a static structure, but rather it reflects a dynamic process which develops and changes as the participants interact. (1982, p. 131)

Gumperz (1982) prefers the sociological term activity types, with the idea that activity types are developing patterns that evolve out of the situated action.

It may be helpful to look back at Agar's (1994) frame unit as a dynamic means of helping conversation participants interpret each other's actions. And with the methodology of ethnography, the elements of the interpretation may be described. The grammatical patterns of speech, the conceptual contents of background expectations necessary for interpretation, and the patterns of the contextual scene can be illuminated through the traditional tools of ethnography, with its observation and interviewing techniques.

Erickson and Mohatt (1982) identify the present work as a microethnography. They contrast microethnography with general ethnography:

> While general ethnography attempts to describe the whole way of life of a naturally bounded social group, microethnography focuses on particular cultural scenes within key institutional settings. (p. 137)

The specific cultural scenes selected for this study were popular commercial games. For Erickson and Mohatt (1982), microethnography is a close up study of how cultural events get done: how participants interact with each other toward reaching culturally defined ends. Microethnography applies anthropology to single scenes or events, taking such events as the games played this study as microcosms of a wider cultural system.

A number of researchers have applied ethnographic investigation to discourse within and outside the classroom (Moll & Greenberg, 1990; Heath, 1983; Philips, 1983; Erickson & Mohatt, 1982; Mehan, 1979). Mehan (1994) reminds us that "the discourse of the classroom is connected to the organization of society" (p. 78). Mehan (1979) describes in an earlier work how thought and language are performed in scripted classroom interactions controlled by teachers, concluding that "learning lessons involves presenting correct academic information in interactionally appropriate ways" (p. 33).

Heath (1982) demonstrates that talk at home has a powerful influence over talk at school. Heath (1983) spent a decade of research examining how preschoolers in two communities learned to talk at home. In her work Heath (1982) described how smoothly white middle class children enter schooling, from a culture that emphasized accurate responses to information questions and identifying or naming objects through attention to their attributes. Heath (1982) contrasted these children with the children of Trackton, a black working class community that was—at the time the study started— being integrated with the white middle class schools. Heath (1982) described the rich talk of the preschool children of Trackton, who learned to emphasize

comparisons through analogy and methaphor, learning about the world around them through attention to likenesses and differences. Without the same interactional strategies as the white children of the school, observed Heath (1982), the black children often fell behind academically. Their enculturation differed from what the white teachers expected.

And a number of anthropological investigators have come to the same conclusion. Minority children from homes with different cultural and linguistic backgrounds are at a disadvantage in America's schools. Cazden (1988) warns about the consequences of such a conflict: "... the result can be misunderstanding, conflict, and invalid inferences about a child's ability to learn" (1990, p. 117). Erickson (1993) points out that the conflicting modes of talk and interaction lead to higher rates of failure among language minority students, which combined with the socioeconomic constraints facing many minority groups, foster academic failure and a lack of trust on the part of these students.

Around the time Heath (1983) conducted her comparison, Philips (1983) reported how white children had an unfair advantage over Native American children at the Warm Springs Reservation in Oregon. Philips (1983) described how the Native American children engaged in different modes of interactive-communicative behavior, leading to different strategies for eliciting and holding attention.

Ethnography in general, and ethnography of speaking in particular, work as a tool for describing the complexity of a bilingual child. As Heath (1982) demonstrates, it is a powerful tool for linking home to school. It helps us to understand how children are enculturated before school, and what kinds of communicative-interactive skills they take with them to school. Moll and Greenberg (1994) call what children learn at home as "funds of knowledge" (p. 320), meaning the kinds of information that is passed on to children through daily activity at home. So cooking, sewing, machine repairs, and tool use are all kinds of funds acquired at home. How minority children acquire these funds at home, though, is often not the same as how they are expected to perform at school.

Ethnography contributes to educational policy, too. Fetterman (1993) notes that ethnography captures the complexity of minority students' lives and perspectives as they attend American schools. This improves the accuracy of our understanding language minority children, making ethnography a "... powerful force when combined with policy decision making" (p. 247). Ethnography, with its global approach to describing the lives of language minority students, can breathe life into the vast array of statistics and demographic figures that influence decisions made on bilingual education programs.

In conclusion, the ethnographic method offers a solution to the debate surrounding bilingual education. McLeod (1994) cautions that "it is naïve to expect English instruction to remove all the barriers to educational excellence" (1994, p. 15). McLeod reminds us that bilingual students often face any number of possible social problems, from neighborhood poverty to schools receiving insufficient funding. What McLeod asks educators to do is to reach out to bilingual children, to make meaningful contact with their home environments:

> Schools can bridge the cultural gap between home and classroom by reaching out to parents in their native language, by using curricula that include peoples of various cultures, and by modifying instructional methods to accommodate the cultural backgrounds of students. (1994, p. 20)

Establishing a bridge between home culture and school culture can be done through an ethnography of speaking, by educators learning more about how school talk may differ from the modes of talk performed by their students.

Such a bridge is critical if educators are to rise above the political debate raging over bilingual education. After all, home talk in a child's native language is more than just talk. And learning school talk entails much more than learning the English language. The languaculture of the home for bilingual children is often worlds away from the languaculture of American schools.

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[i] Limited-English-proficiency (LEP) students include English language learners whose level of English, spoken or reading or both, interferes with their school performance. These students are not necessarily the same as language-minority-students (LM), who come from homes where a language other than English is spoken. (Crawford, 1997) Sometimes LEP students are designated as English Language Learners (ELL), as they require language instruction. Not all LM students, however, require language instruction.

[ii] English as a second language (ESL) instruction covers a broad range of programs. Some include content-based ESL, in which academic content is included with the language study. Others include pull out ESL, in which students are removed from their mainstream classes and taught English language skills for a daily time period. The pull out ESL resembles other traditional kinds of ESL programs that focus on English language proficiency: grammar-based ESL, which teaches grammar and vocabulary and reading skills, and communicative ESL, which teaches conversation. (Crawford, 1997) Naturally, programs may also include a combination of these, with possibly other approaches such as whole language instruction or cooperative learning methods. ESL teachers are usually not expected to speak the native language of their students.

CHAPTER III

Methodology

This chapter reports the methodology of the study. Prior to the research a pilot study was conducted to determine the use of functions in conversation. Based on the results of the pilot study, data were re-analyzed from Agar's (1994) frame perspective. Discussed here are the steps taken to identify and compare conversational frames, toward answering the research questions raised in the first chapter.

Pilot Study

From December, 1995 to February, 1996, a series of conversations were recorded. The conversations featured the daughter playing two commercial games: Jenga (1995) and Pick Up Sticks (1992). Of the total of eight tapes collected, half included conversation between the daughter and her Chinese mother, and half included talk between the daughter and her American father. For the pilot study one recorded game was analyzed from each language.

The games ensured a similar context across both languages. Regardless of which language was spoken, game procedures and moves required that players speak about the same topics. Of the few interruptions during the recorded games, one was a telephone call and a few were requests for moving to family activities such as dinner. The recorder was hidden from the child's view during the taping.

The game Jenga (1995) begins with a tower of colored, wooden blocks, stacked on top of each other in a crisscross pattern, three blocks for each row. The tower is approximately eighteen inches high. Play progresses as players remove blocks from middle and bottom rows, and replace those blocks on the top. Before selecting a block, a player must throw a die; the die has instructions on its sides, such as "wild" picking any colored block in the tower, "middle" for picking from a tower middle row, or "reverse" for losing a turn. The game ends when the tower topples over.

Pick Up Sticks (1992) proceeds without dice. A pile of pointed, colored sticks is strewn out on a surface top. Each player is required to remove a single stick at a time without touching or moving the sticks surrounding it. The game ends when all the sticks have been picked up; the color of each stick refers to the number of points possible for that stick. The game ends when players tally up their points and identify the winner.

The game conversations were transcribed by the researcher. Two research questions were applied to the samples:

(1) What functions were applied in the conversation between daughter and parent, for each language?

(2) How did each language compare in the number of functions for each game?

The goal of the pilot study was to establish whether or not a functional analysis of substantive speech patterns could illustrate the organization of speech episodes.

Substantive speech patterns were coded according to Halliday's (1975) semiotic model of language. Halliday's (1975) functional explanation of language shares similarities with Vygotsky (Wells, 1994; Foley, 1991). The two approaches are compatible: "If Vygotsky's ultimate target is an explanation of individual mental functioning, Halliday's might be said to be the nature and organization of language ... " (Wells, 1994, p. 45). Halliday's model features the six general speech functions listed below.

Function	Description	Action
Instrumental	"I want"	To achieve needs
Regulatory	"Do as I tell you"	To control actions
Interactional	"Me and you"	To participate in society
Personal	"Here I come"	To make/break relations
Heuristic	"Tell me why"	To manage experience
Imaginative	"Let's pretend"	To participate creative acts
Informative	"I've got something to tell you"	To exchange information

The list and quotes from Halliday (1975, p. 37)

Figure 3.1

Halliday's taxonomy of functions.

The results of the pilot study demonstrated the dominance of two functions: the informative and the regulatory. For the English Jenga (1995) game, informative utterances took up 56% (N =92) of the talk, and the regulatory utterances took up 26% (N = 92) of the utterances. As for the Chinese Jenga (N = 74), the informative utterances were 73% and the regulatory 18%. Differences between the languages, for each coded function, did not exceed 10%. In short, the same two functions dominated both games, and there was not a large difference between languages for either function.

The pilot study did not demonstrate a strong difference between Chinese and English in terms of Halliday's (1975) functions. Part of the reason may be linked to Halliday's (1975) belief that the language functions are universal: most of adult language executes the informative function, the exchange of information. Part of the problem, too, may be that the functions listed are too broad; exchanging information may cover a number of functions, such as identifying or informing. More importantly, concentrating on single substantive utterances only provides a list. It does little, though, to show how the speech activity is organized. Such speech activity requires attention to a larger unit. That unit is the frame.

Rationale of the study

Hymes (1974) takes the following points as working assumptions for his ethnography of speaking:

- A systems approach to speech activity which examines a number of dimensions to the activity in its social setting.
- The application of speech functions differs across languages: different cultures talk for different purposes.
- Speech activity is the primary focus for investigation; we start with the conversation and its multidimensional framework.

What Hymes (1974) focuses on are patterns of speaking activity, patterns that feature a configuration of functional components within a pattern of activity.

Agar (1994) defines those components in greater detail. He takes as a general principle: "Grammar and vocabulary contain rich points that require frames for their understanding" (1994, p. 144). Grammar and vocabulary are organized in varying patterns of speech activity, these patterns combining speech function structure and conceptual contents that are expressed through grammar and vocabulary (Agar, 1994). Agar reminds us:

> The experience of culture isn't just inspired by- maybe not even mostly inspired by- words and sentences. The experience also flows out of differences in what those words and sentences are *doing*, in the speech acts that give them shape.
> (1994, p. 174)

To Agar, conversation is much more than a list of utterances. It is a system of activity that merges functions, grammar, and topics (Agar, 1994).

From this ethnographic perspective, frame theory poses a number of advantages for studying the interaction of thought and language. It identifies speech activity in context, toward an effort at identifying units of conversation. It looks at conversation not as a list of functions or other single components, but as a system of mutually interacting components. The system components in this case include the functions, topics, and grammar of the conversation. All three components easily lend themselves to empirical investigation, combined in units of episodic activity designated as frames.

The system outlined by Hymes (1974) and Agar (1994) offers a number of advantages for the study of a bilingual child. The authors outline an approach that is inductive, applied through ethnographic data collecting. This allows for the examination of single cases. They provide an approach that is sensitive to context, the functional structure of the frame depending on the tasks built into a context. Further, they provide a means for describing conversations and conceptual boundaries across cultures. It is for these reasons that the ethnography of speaking is employed in this study.

Data Collection

The study examined the same tapes as those used for the pilot study, but examined only the Jenga (1995) games played on the tapes. The selection included four games that averaged around twenty minutes per game, for each language. The recording of the Jenga (1995) games took place in December, 1995. When the daughter expressed an interest in playing a game, the researcher placed the recorder in a concealed location next to the table. The machine was left on

throughout the entire session of play. Times for starting and stopping the play were determined by the daughter, for the purpose of keeping the play as natural as possible. The mother knew about the taping.

The tapes for the study were checked for content before analysis. Only a few digressions from the game talk were observed; a phone call and a few requests for time or preparing for dinner were noted. In short, the taped contents were mostly about the game activity and thus on the same topic discussion.

The games with the Chinese mother did differ in at least one aspect: the first games were played in Chinese. Thus, the games with the father occurred after the child learned the rules of game from the mother in Chinese. So data collected from the Chinese tape represented a different context from that of the English tape, though both demonstrated similar gaming activity and interaction.

Transcription

Transcription followed Agar's system (1994, 1987). Agar's (1994) system is not as complex as other systems. It does not include many of the intonation features that would appear in a more strictly linguistic analysis of the conversation, nor does it include many phonetic symbols. The purpose of Agar's (1994) system is to reveal the underlying structure to the conversation.

Chinese transcripts followed the same system, but with the Pinyin spelling that is now standard in Mainland China. Pinyin is a system of Roman letters that was adopted by the Chinese government in the 1950's, as part of the educational reforms of the time. Pinyin spelling is the standard for the Mandarin Chinese or Northern dialect that is the official language in China. Mandarin Chinese is a tonal language that uses four tones; there is, though, a fifth or neutral tone that is not marked.

Instead of following the common practice of marking the tones with rising and falling lines, this study placed numbers to the right of each syllable. The word processing software used for producing the transcripts did not include tonal marks; writing such marks in by hand is prone to error. The following table compares the standard marks and their corresponding numbers.

Tone Number	Descriptor	Standard Mark
1	High flat tone similar to that used in an English yes-no question (e.g. "Are you ready? Or "okay?")	
2	Rising tone that starts low and slides up (e.g. when an English speaker asks "huh?")	
3	Dipping and rising tone that sounds like a tonal grunt.	

4	Falling tone that drops off sharply (e.g. an English speaker angrily saying "no!" or "stop it")	

Figure 3.2
Marking the Chinese tones.

As a result, a section of the Mandarin Chinese transcript looks like the following, with each of the tones numbered next to the pinyin syllable, and the translation below:

32 (S) ma1ma yao4 diao4 xiao4 lai2 le =
33 (M) diao4xia4lai2, jiu4 ni3 zhu1 ya(1), ah, na hao, na hao, na hao, suan4le.
34 (M) gei3 ni3 cong2xin1 + nong4 yi1 ge4, cong2xin1 nong4 (1) ...
35 (S) mm (18)

32 (S) Mama, [the tower] will fall down soon=
33 (M) If it falls down, only you'll loose (1), ah okay, okay, okay, forget it now.
34 (M) Give you more turns + take one, take more chances (1) ...
35 (S) mm (18)

The word or syllable "le" at the end of the first line has a neutral tone, so it is not marked.

Constructing frames for analysis

Key to the analysis was the construction of the frames. In accordance with the principles outlined by Hymes (1974) and Agar (1994), construction of the frames included the following steps:

- Identification of frame boundaries within the transcripted game conversation.
- Removal of the frame units from the larger conversation.
- Classification of groups of frames according to frame functions.
- Completion of the frame analysis chart for each frame.
- Completion of a list of the substantive utterances within the frames.
- Identification of the conceptual frames.
- Testing frame and form class consistency by paraphrasing.

On completion of the procedure for both languages, the comparison was conducted across Chinese and English.

The first step featured the identification of frame boundaries. Frame boundaries were identified chiefly by changes in topic: transitions to new conversation topics indicated changes in framing, and consequently changes in the focus of attention as well. Besides topic changes, regulatory utterances marked the closing or ending of frames, with such expressions as *mhm* or *oh* in English. The expressions **hao** or **mhm** marked frame closure in Chinese.

Following that frames were physically removed by cutting out the portions of text from the transcripts, with frames examined and stored as separate conversations on index-sized slips

of paper. The following transcript section is presented as an example. Look over, first, the entire section of transcript. A chart of transcript symbols is presented above the piece.

Transcript Symbol	**Feature**
A period.	Full stop
A + sign	Pause from longer than a full stop to about a second.
(3)	Refers to the number of pausal seconds counted past one.
The colon or : (e.g. a:h)	An elongated vowel sound.
An = sign	Words that carry into each other without a pause or drop in pitch.
A / slash	An interruption- second word overlaps the first.
A ? mark	Question, often marked by raised terminal pitch.

Figure 3.3
Agar's (1987) transcription symbols.

01 (F) want me to do that?
02 (S) all right.
03 (F) which + how do I do this?
04 (S) hold this part an' put it.
05 (F) okay.
06 (S) don't let, let it come out (3) that's better.
06 (F) now, I need you to tell me first how to play this game.
07 (F) 'cause I never played it before.
08 (S) first ya have to roll the dice = but +
09 (S) you know what reverse means, right?
10 (F) a:h + what does it mean?
11 (S) ya don't get your tu + turn but any two means (2)
12 (S) if ya roll it to any two (1) it means you get, get two loose ones.
13 (F) uh huh =
14 (S) but you can't two on this (1.5) all three of these on this top
15 (S) and you can't take them over here or here =
16 (F) mhm.

Taking the example further, the section was broken up into the following frames, as determined by the frame boundaries. The first frame recorded is:

01 (F) want me to do that?
02 (S) all right.

The frame starts with a request, followed by a response in the form of regulatory response. The topic tied to the request, however, changes with the next frame, which is triggered by an information question:

03 (F) which + how do I do this?
04 (S) hold this part an' put it.
07 (F) okay.
08 (S) don't let, let it come out (3) that's better.

The topic changes with the question about the game procedure or action; the frame closes with an evaluation of the action: "that's better."

In the third frame cut from the section, the father requests the Jenga (1995) procedure from his daughter. A transition word is attached to the request: "now." A brief pause follows as recorded by the comma:

06 (F) now, I need you to tell me first how to play this game.
07 (F) 'cause I never played it before.
08 (S) first ya have to roll the dice = but +

The next frame that was removed from the section begins with a confirmation. The topic shifts from attention focused on the procedure of the game to instructions recorded on the side of the die. A regulatory utterance closes the frame, with "uh huh."

09 (S) you know what reverse means, right?
10 (F) a h + what does it mean?
11 (S) ya don't get your tu + turn but any two means (2)
12 (S) if ya roll it to any two (1) it means you get, get two loose ones.
13 (F) uh huh =

The last frame example includes a transition following "but," to show comparison or contrast, and ends with a regulatory phrase: *mhm*. The locus of attention changes again, this time from the die to the position of blocks.

14 (S) but you can't two on this (1.5) all three of these on this top
15 (S) and you can't take them over here or here =
16 (F) mhm

As stated, frame boundaries are identified in this study as an initial topic shift combined (but not always) with a transition word, and a closing transition marked with a regulatory expression and drop in pitch. A long pause more than two or three seconds long may indicate a frame change, too.

Classification of the frame units was determined by the function of the entire frame, which was usually indicated by the first utterance of the frame. How the frame started typically determined its category. For instance, frames for requesting usually began with request, or

frames for reporting information typically began with an observation of a change in the game play.

After placement in their categories, frames were analyzed for their structure. Frames are patterns of speaking activity that move through time. Analysis, then, includes the frame structure as a linear organization, a pattern of turns and speech functions that progress in a straight line. Completion of the following table was used to chart the structure of the frames:

Focus:				
Utterance #	**1**	**2**	**3**	**4**
Speaker				
Topic				
Function				
Mode				
Form Class				

Figure 3.4
Frame Analysis Chart.

The following components make up the frame chart:

- Focus is what the frame conversation is talking about, the single topic that is discussed within the lines of the frame conversation.
- Utterance number is the position of the substantive utterance in the conversation.
- Speaker refers to who produced the utterance.
- Topic is the pronoun, demonstrative, or synonym that refers to the frame topic.
- Function refers to the speech function of the utterance. (See Appendix I)
- Mode designates whether the utterance was a question, statement, command, compound, or complex sentence form.
- FC refers to the form class, defined in the first chapter as the grammatical pattern that expresses the function.

Examples of the frame charts are given below. The first is an informing frame that begins with the informing function when the father informs the daughter about himself. It then moves to the fragmentary utterance (i.e. F) at the end.

Focus:	Play procedure			
Utterance #	1	2	3	4
Speaker	F (father)	F	S (daughter)	S
Topic	Me	Me	You	
Function	Complex	Statement	Command	F
Mode	Informing	Explaining	Ordering	
Form Class	Tell	Before	Roll	

Figure 3.5
Example of a completed frame analysis chart.

One difference between the English and Chinese frames was in the speakers: the mother and daughter, the topics spelled out in Mandarin Chinese, and in the language forms themselves. A second difference was found in the coordination of sentences. Chinese utterances were frequently connected by a comma, representing a brief stop. In English the pattern was recorded as a compound sentence form. Yet the pattern occurred so often in Chinese that it was easier to treat the two clauses as separate utterances. Chinese frequently fused two utterances where English marked a more complete stop.

The fifth step in the frame analysis included identification of the substantive utterances and their topics and form classes. This step compiled the concept information for the frame chart through the use of the following substantive utterance chart. The one below is an example of that used for English Jenga (1995) games.

No.	Topic	Function	FC	Sample
1	Block	Confirm	Push	So if you push a loose one out.
2	Block	Predict	Fall out	It won't fall out.
3	Block	Contrast	All	It won't fall all on the ground.
4	Block	Contrast	Do	But if you do.
5	Block	Direct	Take	Don't take the loose one.

Figure 3.6

Example of a completed substantive utterances list.

The importance of the list was in helping to identify the kinds of form-classes tied to each function, illustrating the conceptual frame present for each utterance.

Notation of conceptual frames followed a system suggested by Wierzbicka (1997). Wierzbicka (1997) analyzes key words of different languages, toward describing the cultural-specific concepts embedded within a language. In her analysis, Wierzbicka uses the upper case X to refer the placement of a concept within particular grammar patterns. Applying the same system, whereby X stands for the topic-concept under scrutiny, the following patterns were examined for the concept of the Jenga game tower:

Here X refers to a block topic: one of the blocks removed and stacked in the Jenga game.

Concept Frame	Actual Sample produced.
X won't fall out.	It won't fall out.
Don't take the loose X.	Don't take the loose one.
Here's X.	Here's one.
I got X.	I got one.

Figure 3.7

Example of English concept frames for the Jenga Game.

Here X refers to a block topic: one of the blocks removed and stacked in the Jenga game.

Concept Frame	**Actual Sample produced.**
Hen2 X le.	Hen2 gao1 le.
Bu4neng2 X.	Bu4 neng2 huan4 shou3.
Xian4zai4 shi4 X le.	Xian4zai4 shi4 ma1ma le.
Ni3 ke3yi3 X.	Ni3 ke3yi3 move.

Figure 3.8

Example of Chinese concept frames for the Jenga Game.

Both activity frames and conceptual frames were tested for accuracy through paraphrasing. In her own work Wierzbicka (1997) refers to two properties of natural languages: allolexy and polysemy. The terms mean that any element of meaning within a language can be expressed through multiple ways. We cannot ascribe one meaning to one word. Typically, a set of words applies to a single concept; thus, the idea of the conceptual frame. The frame unites words that resemble each other in meaning.

The paraphrasing procedure helps to identify form classes. Selection of a form-class word means that from four to six related words belong to the same conceptual frame. Wittgenstein (1958) also suggested the paraphrasing procedure in his outline of a method for conducting language-games. Wittgenstein (1958) describes it as a process of applying substitutions to the frame. In other words, it is a process of paraphrasing. The letter X above marks the position of a form class, where the word set may be inserted or placed within the grammar frame. Similar groups of words behave through similar grammatical patterns.

If this principle applies to the level of the word, it should also apply to a larger level such as a frame. Take one of the frames recorded in the discussion on identifying frame boundaries:

06 (F) now, I need you to tell me first how to play this game.
07 (F) 'cause I never played it before.
08 (S) first ya have to roll the dice = but +

For checking our accuracy in identifying the unit as a frame, we refer again to the idea of multiple meaning items belonging to one set, taking a set here as a group of related words that belong to a grammar slot.

Examining the conceptual frame for the above, we see:

06 (F) now, I need you to tell me first how to play this X.
07 (F) 'cause I never played X before.
08 (S) first ya have to _____ = but +

We may substitute for X any number of related concepts: hand (cards), position, match, person, situation. With some substitutions, then:

06 (F) now, I need you to tell me first how to play this hand.
07 (F) 'cause I never played it before.
08 (S) first ya have deal = but +

06 (F) now, I need you to tell me first how to play this point.
07 (F) 'cause I never played it before.
08 (S) first ya have to roll the dice = but +

06 (F) now, I need you to tell me first how to play this match.
07 (F) 'cause I never played it before.
08 (S) first ya have to _____ = but +

By Substituting for different concepts we still have a unit of speaking activity that retains its cohesiveness. If a frame boundary were to begin with the second line, however, we may lack the same coherence. The paraphrasing test helps in identifying consistency: consistency at both the form class and activity frame levels.

In summary, seven steps were followed in the construction of frames for this study. The steps progressed from identification and classification of the frames, to examining their components for analysis, and finally determination of conceptual contents. At both the speaking frame activity level and the conceptual-content level, paraphrasing tests were applied to check the consistency of the frames.

Validity and Reliability

Construct validity is noted first. Agar's (1994) frame theory, Bateson's (1972) play frames, Hall's (1977) situational frames, and Hymes' (1980) activity routines are some contributions from anthropology. The philosopher Dewey (1922) suggests habits as organized modes of responding, while Wittgenstein (1958) developed his theory of language-games as forms of life. From psychology both Piaget (1968) with his schemes and operations, and Skinner's (1958) description of episodic activity, have contributed a similar construct. The term frame stems from work by Minsky (1980), who coined the term in describing data structures. The sociologist Goffman (1974) applies the term of a frame to the explanation of human activity. In conclusion, the construct of a frame has been presented a number of times throughout this century as a unit for exploring human behavior.

Toward establishing internal validity to the English frames, the author conducted a peer review. Two experts were consulted for determining internal validity. The first was a trained expert in linguistics, the other an expert in teaching English as a second language, with a background in linguistics and language teaching.

For determining internal validity, two frames were selected from each frame category, for a total of ten frames from the five English categories. The frames were presented with a single question: What did the reviewer think was occurring in the frame? Thus, the effort was made to establish agreement in identifying the general activity for each frame.

The expert in linguistics agreed with six of ten frames listed (60%). The matching responses were synonymous with the researcher's frame category or recorded frame activity. The second reviewer noted paraphrased dialogs that she thought matched the frames. Of her paraphrase suggestions, five out of ten (50%) were synonymous with the researcher's. The work of both reviewers, then, matched about 55% of the researcher's identification of frames.

The researcher also relied on peer examination to check the reliability of functions listed. Three sections of the transcript were given to a colleague in education, each section about twenty lines long. The colleague was asked to list functions and possible frame boundaries. That colleague listed the gerund nouns requested for the function forms, her functions agreeing with the researcher about 40% of the time. The purpose was to compare another native speaker's perceptions of the speech event with that of the researchers, toward establishing greater consistency for the study.

Had the researcher trained the colleague in using the functions noted for this study, the agreement would have been much higher. About five functions were suggested on the directions given to the reviewer; the functions were raised only as possible functions in the directions given to the reviewer. Yet the reviewer applied some of the suggested ones consistently. At least three functions suggested on the direction sheet, ordering, identifying and requesting, were matched 87% of the time; at least one, asserting, rarely matched as the reviewer used it in a different sense than the researcher. In short, training in the functions would have lead to a higher agreement of matching functions.

The mother who participated in the study was consulted for establishing the reliability of the Chinese transcripts. The final transcript of the Chinese Jenga (1995) game was reached by oral consensus while both mother and researcher listened to the tape of the game. Hence, the final Chinese transcript was a joint effort arrived at by researcher and study participant.

The mother was also consulted for checking the internal validity of the Chinese frames. At first mother and researcher agreed on 80-85% of frame boundaries, the mother determining frame boundaries based on the researcher's definition of a frame as a single topic of conversation bounded between pausal and regulatory markers. Later, frame boundaries and frame categories were established by consensus with the mother, both mother and researcher reviewing the frame samples together.

In summary, the researcher's observed frames and functions were checked against both expert and native speaker perceptions. No statistical tests were applied in this effort, since the matches were paraphrases or synonyms corresponding to the researcher's choices. The answers did not lend themselves to exact matches necessary for statistical analysis. Still, the answers did suggest some consistency of perspectives.

Methodology summary

The methodology outlined here proposed a means for studying frames. An earlier pilot study had determined that a counting or listing of frame functions was not effective for determining the patterns of speaking activity. The notion of a frame was adopted as a way to explore the organized speaking activity found in conversation, in this particular study that activity was centered on the commercial game Jenga (1995). A procedure was then established for studying the conversation activity of the game, as it was played with the child's Chinese mother and English father.

CHAPTER IV

Results of the Study

This chapter reports the results of the study. The results reflect the different contexts enacted with each parent. While the mother played the game with the daughter for the first time, the father played with the daughter as an experienced player. In short, the roles of experienced player and novice player reversed in the games between the father and daughter. The mother had on a previous occasion played the game with friends and was thus familiar with the rules and strategies for play prior to the first games with the daughter. The results presented here record, then, speaking activity with the parents in different role relationships with the daughter.

Framing the Chinese gaming activity

The transcripts demonstrated only a loose configuration of patterns for each language. Identification of frame categories relied on the first two to three utterances for each frame, but utterances beyond the opening topic setters showed no tight configuration of function patterns. Each utterance referenced the same general topic throughout the frame; however, typically only the topic reference provided coherence for the frames. In short, the patterns discovered lend weak support to the idea of frame speaking activity. We turn first to the Chinese frames.

For the Chinese games four frames were identified and analyzed. The first of those frames, the describing frame, featured talk centered on describing the features of different game artifacts. Most of the Chinese game talk consisted of the directing game, in which the mother provided criteria, directions, and strategies for executing the moves of the game. Frames involved with eliciting information, the informing frames, were limited to only three frames. The second largest category, the reporting frames, featured talk on changes occurring during the game play; for Jenga (1995), the changes in game play nearly always followed the results of the dice roll.

Figures on the overall talk activity are presented in Figure 21. The different frames identified are compared according to the number of substantive utterances included, the average utterance length of a single frame, and the topics embedded in the frames. The table highlights the dominance of the directing and reporting frames.

Table 4.1
Chinese game activity frames.

	Number of Substantive Utterances	Average Utterance Length per Frame	Most Frequent Frame Activity Topics
Describing Frames (N = 5)	33	6.6	Mix: describing the blocks, game, and tower.
Directing Frames (N = 45)	361	8.02	Directing the daughter in the use of the colored blocks.
Informing Frames (N = 3)	24	9.33	Informing about the tower.
Reporting Frames (N = 36)	218	7.28	Results of dice rolls.
Totals (N = 89 frames)	**636 utterances**	**Average length = 7.8 utterances per frame.**	

The transcripts demonstrated the mother's influence over the Chinese game activity. The following table marks the wide difference in the proportion of talk taken up by the mother, versus that of the daughter. As stated in the opening of the chapter, the mother recorded here played the role of a parent combined with that of an expert player in the game. Most of the talk was spent in directing or showing the daughter how to play the game.

Table 4.2
Chinese game: Comparison of mother-daughter talk.

	Mother Substantive Utterances	Daughter Substantive Utterances
Describing Frame	24	9
Directing Frame	295	66
Informing Frame	14	11
Reporting Frame	173	44
Totals	**506**	**130**

A similar proportion appears in the number of frames started by the mother, versus the number started by the daughter. The mother prompts or initiates 68% of the frames during the

game play, while the daughter only starts 32%. In other words, the mother dominates both talk and opening talk topics.

Table 4.3
Chinese Game: Comparison of who initiated each frame.

	Frames initiated by the mother	**Frames initiated by the daughter**
Describing Frame	1	4
Directing Frame	33	12
Informing Frame	1	2
Reporting Frame	26	10
Totals	**61 initiated by mother**	**28 initiated by daughter**

Looking at the Chinese frame categories, we first turn to the two smaller frames: the describing and informing frames. The describing frames open with a description function, the talk highlighting the perceptual features of objects in view. In this case, description talked about game artifacts, such as the colored blocks. A list of the openers is provided below.

Table 4.4
Table of openings for the Chinese description frames

Description Utterances	**English Translation**
Zhe4ge4 hen2 hao3 na2, dui4 ma?	This colored block is easy to take, isn't it?
Zhe4ge hen2 song1, hen2 song1.	This colored block is very loose, very loose.
Hen2 gao1 le.	The tower has become very tall.
Hen2 gao1 a, dui4 bu4 dui4?	Isn't the tower tall?
Ni3 jin1tian1 wei4kou3 hen2 da4 ma.	Your appetite [for games] today is very large.

One frame did not open with a description category. Instead, the description followed in the second line. Description openers were followed by further modification of the description talk: responding to the description or emphasizing aspects of the description. Table 5 lists the utterance configurations for the description frames.

Only three informing frames were recorded during the Chinese game. Informing frames opened with the telling of personal information: what the speaker knows or feels. The rest of the

frame is spent on reacting or adding to that information. So the game talk spent little time on establishing means of expressing personal states and understanding.

Table 4.5
Example sequences for the Chinese describing frame.

	Utterance Sequence			
	Frame 1	Frame 2	Frame 3	Frame4
1	Describe	Describe	Describe	Report
2	Identify	Confirm	Affirm	Emphasis
3	R	Affirm	Direct	Report
4	F		Report	Describe
5	F		Report	Condition
6	Evaluate		Evaluate	Emphasis
7	Predict		Report	
8	Order		Predict	
9	Direct		Predict	
10	Report		Report	
11			R	
12			R	
13			Emphasis	
14			Describe	
15			Warn	
16			Report	
17				

Each frame is placed in a single column, to be read from the top down. The bold numbers to the left indicate the position sequence of each function. For Frame 1, for example, the identifying function follows the description, and is in turn followed by a regulatory (R) function and two speech fragments (F).

A much greater proportion of talk was spent on reporting the die roll results. Over 218 utterances were recorded on frames centered on the die roll activity. Each die activity followed a similar sequence of events: a player assumed a turn, a turn indicated by the mother. The die was then thrown, and both parties called out the result of the roll. The mother usually presented a choice with each roll, pointing out to the daughter the block color that matched the die instructions. Actually, the game presents no choice: the colored blocks are stacked in specified rows. So to get an end roll, for example, would automatically mean the selection of a yellow block. The mother, nevertheless, presented the colored block as a choice. The rest of the reporting frame would include additional rolls or the consequences of the first roll. The following chart shows examples of reporting.

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Table 4.6
Die roll acts and speech forms in
the Chinese reporting frame.

Frame Action	Utterance	Translation
Die roll result	Middle. Any two. End. Reverse.	*Both mother and daughter called out the English word written on the dice face.*
Mother points to a choice	Huo4zhe3 shi4 lan4de. Huo4zhe3 shi4 hong2de. Huo4zhe3 shi4 huang2de.	Or it's blue. Or it's red. Or it's yellow.
Marking of a new player turn	Xian4zai4 ni3. Xian4zai4 ni3 de. Ni3 de le.	Now you go. Now your's. It has become your turn.

Examples of the Chinese reporting frame are listed in Table 7 below.

Of the Chinese frames, the most numerous were the directing frames, with forty-five frames composed of 361 utterances. The directing frames showed little interaction on the part of the daughter; a number of directing frames were nearly all talk on the mother's part, with the daughter silent or only contributing some regulatory utterances. At least twice during the game activity, the tape recorded the mother in a monologue, presenting a long list of directions on how to play the game.

At least two functions in the Chinese speech were not recorded with the English speech: checking and warning. The checking function called to the daughter to look more closely at her activity, with the phrase "ni3 kan4jian4," meaning to look more closely. The warning function included such phrases as "dan1xin1 dian3" or "be careful" and "qing1 yi1 dian3" for "act more lightly." A third extra function, that of correcting with such phrases as "cuo4 le" or "has become wrong" were used to monitor the daughter's activity.

Table 4.7
Example sequences for
the Chinese game reporting frame.

	Utterance Sequence			
	Frame 1	Frame 2	Frame 3	Frame4
1	Report	Report	Report	Report
2	Choice	Report	Choice	Possible
3	Condition	Check	Possible	R
4	Permit	F	R	Identity
5	Explain	Report	Explain	Emphasis
6	Condition	Report	F	Inform
7	Emphasis	Evaluate	Generalize	Locate
8	R	F	Generalize	
9	F	Permit	Warn	
10	Correct	Locate	Inform	
11	Place			
12	Describe			
13	Emphasis			
14				

The directing frames, as the next table demonstrates, were the most loosely connected frames. The researcher experienced difficulty in deciding on the boundaries for the directing frames, and with the mother's long attention to the play of the game, many of the directing frames lasted beyond the eight-utterance average. The directing frames were typically, then, loose sets of instructions. The instructions were part of the mother's reaction to the daughter's play, and were part of the mother's effort to closely monitor the daughter during the play.

Table 4.8
Example sequences for the Chinese
directing frame

	Utterance Sequence			
	Frame 1	Frame 2	Frame 3	Frame4
1	Order	Evaluate	Correct	Permit
2	Locate	Affirm	Report	Permit

3	Check	Choice	Identity	R
4	Report	Permit	Check	Certain
5	R	Locate	Emphasis	Identity
6	Permit	Warn	Order	Certain
7	Permit	Recommend	Identity	Certain
8	Permit		R	Assert
9	Inform		Report	Condition
10	Inform		R	Emphasis
11	Permit		Evaluate	Inform
12			Compare	Certain
13			F	
14			R	
15			R	
16			Need	

Framing the English gaming activity

The English games with the father contrasted with the Chinese games. The father-daughter play featured five frame categories. The first, the confirming frames, typically started with the conjunction so: "So does this mean you have to take the yellow one?" In another case, "So it's supposed to be like that?" Informing frames performed the same function as those in the Chinese game, but were much more numerous. Recommending frames showed suggested courses of action, and the reporting frames in English also paralleled those in Chinese, with talk centered on the dice roll results. A final frame unique to the English play was the requesting frame, in which the father or daughter usually presented requests with the modal can. The next chart presents the English game talk.

Table 4.9
English game activity frames

	Number of Substantive Utterances	Average Utterance Length per Frame	Most Frequent Frame Activity Topics
Confirming Frames (N = 9)	30	3.33	Use of the colored blocks and their rules.
Informing Frames (N = 26)	116	4.46	Moving, describing, and placing the colored blocks.
Recommending Frames	93	4.65	Mixed topics: the game tower, dice

(N = 20)			roll results, and the use of the blocks.
Reporting Frames (N = 40)	163	4.08	Results of dice rolls.
Requesting Frame (N = 16)	58	3.63	Mixed topics: use of hands during play, use of colored blocks, dice roll actions.
Totals (N = 111 frames)	**460 utterances**	**Average length = 4.03 utterances per frame.**	

The proportion of talk between father and daughter also contrasted with that between mother and daughter. Here the daughter dominates the speech activity, producing nearly one hundred more utterances than the father does. Again, the reversed roles between mother and father contributed toward the contrasting speaking activity. The father as novice played with the daughter as a Jenga expert who had much to say about the play of the game.

Table 4.10
English game: Comparison of father-daughter talk

	Father Substantive Utterances	**Daughter Substantive Utterances**
Confirming Frame	14	16
Informing Frame	51	65
Recommending Frame	38	54
Reporting Frame	52	111
Requesting Frame	28	31
Totals	**183 initiated by father**	**277 initiated by daughter**

In terms of who started each frame, the talk is more even than with the total number of speech utterances. As indicated by the above, the daughter talks 60% of the time, often answering the father's questions about how to play the game. But the father initiates more frames toward eliciting the kinds of information a novice player would need for playing the game.

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Table 4.11
English Game: Comparison of who initiated each frame

	Frames initiated by the father	Frames initiated by the daughter
Confirming Frame	5	4
Informing Frame	21	5
Recommending Frame	7	13
Reporting Frame	12	28
Requesting Frame	15	1
Totals	**60**	**51**

At least two frame categories were shared across each language. Informing frames, as noted, were much more numerous in English (23%) than in Chinese (3.4%). In his role as a novice player, the father encouraged the daughter to tell about the various aspects of the game. Many of the English informing frames, for instance, opened with an explaining function, or an effort toward eliciting an explanation for moving the colored blocks. The other frame in common, the reporting frame, followed the same sequence of activity: the die roll, the calling out of the result, and references to a turn transition. Like the Chinese reporting, the English reporting matched closely with the game activity, the talk responding to events of the game as they developed.

One frame observed only in the English play was that of confirming. As noted, confirming consisted of frame openings beginning with a so-question (e.g. "So that's how you do it?" or "So it's better to pick a loose one?"). As shown in the next chart, the so-question was followed by greater clarification of the information sought.

Table 4.12
Examples of utterance sequences from
the confirming frame.

	Utterance Sequence			
Frame Slot	Frame 1	Frame 2	Frame 3	Frame4
1	Confirm	Confirm	Confirm	Confirm
2	Identify	Choice	Describe	Report
3	Direct	Disagree	Contrast	Disagree
4		F	Contrast	Identity
5		Report	Direct	R
6		Request		F
7		Direct		Identity
8		R		Identity
9				Predict
10				

In the more shared talk of the English game frames, making requests and recommendations emerged as separate categories. But they were not observed within the Chinese game activity. Samples of recommendations and requests are presented in Table 13.

Table 4.13
Examples of English game recommendations and requests.

Recommendations	**Requests**
You have to roll it [the dice] like this. Maybe I should roll it [the dice] again. How about the top [of the tower] here? They're [the pattern of colored blocks] supposed to be like that.	Can I do this [move a colored block] with two hands? Can I go this way? Are you allowed to use the other hand? Want me to do that?

Chinese games did differ from the English games in terms of the categories observed during the play. Different needs for communication emerged from the different role stances taken by each parent. Yet the nature of the frame remained the same: that of a loosely related set of utterances bounded within the confines of a single topic. The recommending and requesting charts listed below further show that for English, too, consistency in function patterns lasted only through the first two functions.

Table 4.14
Examples of utterance sequences for
the recommending frame.

	Utterance Sequence			
	Frame 1	Frame 2	Frame 3	Frame4
1	Obligation	Request	Permit	Inform
2	Compare	Set	Locate	F
3	Compare	Permit	Permit	R
4	R	Describe	R	Order
5		Contrast		Inform
6				Deny
7				Order
8				Inform
9				Order
10				Inform

Table 4.15
Examples of utterance sequences for
the requesting frame.

	Utterance Sequence			
	Frame 1	Frame 2	Frame 3	Frame4
1	Permit	Request	Permit	Request
2	Affirm	Deny	Permit	Deny
3	Explain	Predict	Direct	Request
4	Report	Condition	Offer	Deny
5	R	Recommend	Recommend	Explain
6		R	Report	Recommend
7			R	Report
8				Direct
9				R
10				

A comparison of the Chinese and English gaming

In looking at the first two research questions from page eight, on how the frame structures form and differ between each language, the only answer has been in the frame categories. The Chinese talk centered on directing and reporting, with a few instances of describing and informing. The mother as expert player in the game instructed her novice daughter in its play. The English talk, though, placed the father in an opposite role, as a novice against an experienced player: the daughter. In the father's effort to learn about the game, he participated in informing, recommending, and requesting frames to elicit information on the game. As in the Chinese game, the English talk spent a greater proportion of time on talking about the die rolls, their results and consequences. All of these frames formed loose configurations of speech functions, the coherence of each frame more a product of topic reference than an exact pattern of functions.

Analysis of the functions coded

Though the activity frames did not demonstrate the consistency expected, the conceptual frames did show greater consistency. The functions coded in each language revealed consistent uses of grammatical frames, as shown in the table below. The words marking the function are in italics. The function determined the linguistic pattern that framed the topic concept.

Table 4.16
Samples of functions and grammatical forms

	Chinese	**English**
Describe	*Hen*2 gao1 le. (The tower's very tall.) *Hen*2 wei1xian3. (The tower's very dangerous.)	That one [colored block] *is* sticking out. It *'s* [the tower] tall. Two [colored blocks] that *are* real loose.
Evaluate	Zhong1jian1 de dou1 *hen*2 hao3. (The middle ones are all good.) Na4ge4 bu4*xing*2 de. (That's not good.)	That's not *right*. You're *good* [at this game] That's *better*.
Order	Ni3 *fang*4 ya, ni3 fang4 ya. (Put it down.) Ni3 *bie*2 nong4. (Don't move the block.)	*Pick* two loose ones. [two loose blocks] Oh, *be* very careful. [moving that block]
Report	Ma1ma *na*2 yi1ge4 lan2 de. (Mama took two blue blocks.) *Wild*. (Dice face says wild.)	You *knocked* it [the tower] down. *Reverse*. (Dice face says reverse.)

It was through the application of the function that social activity merged with speech activity. The speech activity framed topic concepts within the linguistic patterns for each language. Before illustrating how forms and functions and topics merged in the speech transcribed, it is necessary to identify the more frequent functions for each language's speech activity.

Table 4.17
Most frequent Chinese functions.

Function	Count	Descriptor
Choice	33 utterances	An or conjunction marked in Chinese as huo4zhe3.
Evaluate	30 utterances	To assign a value to an object or action.
Identify	35 utterances	To reference an object or action as a type.
Order	47 utterances	To issue a command.
Permit	53 utterances	To designate an action acceptable by the game rules.
Report	98 utterances	To relay the perception of a single event.

The Chinese utterances again reflect the context of the mother-daughter games. The mother's previous experience with the game and her role as a parent combined in the key functions listed. Besides the frequent references to the dice roll results, through the reporting function, the mother instructed the daughter in how to play the game through order functions or commands, and permit functions defining what game strategies were acceptable.

The reversed roll of the father is also reflected in the English game activity. It is also possible that the father's work as a teacher-researcher crept into the game playing, in the father's effort to elicit explanations and information about the game playing. In his role as a novice player, too, the father tried to elicit information about the game play. The role as parent was also present in the directing and permitting functions by which parents impose structure on parent-child interaction.

Table 4.18
Most frequent English functions.

Function	Count	Descriptor
Direct	29 utterances	To assign a task action without a command order.
Explain	31 utterances	To account for how or why an event takes place.
Identify	30 utterances	To reference an object or action as a type.
Inform	34 utterances	To tell about something known or understood.

Permit	37 utterances	To designate an action acceptable by the game rules.
Report	74 utterances	To relay the perception of a single event.

Functions and conceptual frames for the Chinese gaming

Looking first to the Chinese functions, the first key function is that of choice. On completion of a die roll during the Chinese game, when both mother and daughter called out the English word written on the dice face, the mother frequently produced a choice to accompany the roll result.

Some of the words on the six die faces include the names of the different block positions for each row of the tower. As the block rows are arranged in a set pattern, the die commands have each position written on a background of the corresponding color. So "end" is written on a field of blue, for all the end color blocks are blue, the middle ones are red, with "mid" written on a red face. As yellow marks the end opposite blue, one dice face has "end" printed on a yellow face. Other dice commands feature "wild" for permitting any choice, and "any two" for allowing a player a second chance to pick a block.

For those faces with the colored background reminding the player of the kind of block to be picked, the mother frequently called out the color as a choice. Only the mother produced the choice function, and only in conjunction with the die roll result. The function here usually followed the initial die result report, such as "wild" or "end," after a complete stop. So it is presented here as a coordinating device that presents a choice. Table 19 below presents paraphrases for the function, toward explaining its conceptual frame.

Table 4.19
Paraphrase table for the Chinese choice function

Concept Frame: Huo4zhe3 shi4 X

Transcript Samples	Form Class Paraphrases	
Middle, huo4zhe3 shi4 hong2de. (Middle, or red.) Huo4zhe3 na2. (Or take the block.) Huo4zhe3 shi4 bian1shang4 de. (Or it's on the top.)	Huo4zhe3 shi4	End. Huang2de. (yellow) Hong2de. (red) Lan2de. (blue) Bian1shang4 de. (the top)

	Alternate Paraphrases	
	Huo4zhe3	Shi4 (be something) Chi1 dong1xi. (eat something) Kan4shu1 (read a book) Na2 (take a block) War2 (play something)

It should be noted here, though, that the grammar for huo4zhe3 is not completely represented here. In looking at the section Alternative Paraphrases, we see only one half of what Mandarin speakers would usually speak. In other words, huo4zhe3 presents an alternative, so Chinese speakers would normally present another activity before those listed above. Roughly translated, one possibility would be "Do work or play something," or "go out or eat something." In the same sense, the concept frame here indicates a presentation of alternatives: "end or yellow," or "red or middle." The frame then, is an alternative frame, presenting two features of the die face as a choice for the daughter to act on: to act on the block as a colored object or to act on the block as a positioned object.

Evaluating was applied through the mother's effort in monitoring the daughter's activity. Evaluating plays a regulatory role in speech; it discriminates good from bad performances. The daughter's response to an evaluating function was to change her course of action. As Table 20 demonstrates, much of the use in applying the evaluating function is with the negative, marked in Chinese with the particle bu4.

Table 4.20
Paraphrase table for the Chinese evaluating function.

Concept Frame: Bu4 X.

Transcript Samples	Form Class Paraphrases	
Bu4xing2. (Not okay.) Bu4 yao4jin3. (Not serious.) Na4ge4 mei2 guan1xi4 de. (That's no matter.) Zhe4ge4 hao3. (This is good.) Wild zui4 hao3. (Wild is the best.)	Bu4	Yao4jin3. (not serious) Hao3 (not good) Xing2 (not okay) Neng2 (not possible) Ke3yi3 (not can do) Zhun3 (not allowed) Hui2 (not capable)

In Table 20 no alternative paraphrases are listed due to the large number of possible nouns that may be placed before the evaluating markers. Typically a thing is evaluated with the above pattern. The use of a thing is regulated in terms of what can or can not be done, what is permitted within specified boundaries. So capability and allowing are part of evaluating, as are tones of good and bad. Evaluating, in summary, regulates objects according to what is capable, permissible, risky, serious, or defined. Assumed here, too, is a response that returns or corrects the object back to it to what it is capable of, if the object had performed in an unacceptable manner.

Identifying here refers to inclusion in a class or category or objects. The Chinese identifying function resembles that of English: categorizing of a class of objects, or saying what something is, with the use of a BE word (in Chinese **shi4**). Yet **shi4** only applies to objects in Chinese. As the samples in Table 21 show, Chinese adjectives can act as their own verb, with some sentences missing the shi4 but including the particle "de." Chinese concepts may also be marked with the particle "le," loosely defined here as a participle of becoming, that a change in state has occurred, of a condition of not having a certain quality to having that quality.

Table 4. 21
Paraphrase Table for the Chinese Identifying Function

Concept Frame: Zhe4/na4ge4 shi4 X.

Transcript Samples	Form Class Paraphrases	
Na4 shi4 ni3 de. (That's yours.) Na4 shi4 di4 yi1 pai2. (That's the first block.) Zhe4ge4 huang2de. (That's yellow.) Hong2de. (That's red.) Ma1ma de le. (That has become Mama's)	Zhe4/Na4ge4 shi4 (This/that thing is)	Ni3de. (yours) Ni3 de le. (has become yours) Ma1ma de. (Mama's) Huang2de. (yellow.) Hong2de. (red)

With the use of the word **shi4**, however, there are few if any substitutions. The grammar here marks a frame of things. Part of that is the word **ge**, a measure particle which simply means one unit or piece of an indefinite something. Combined with the demonstratives listed, we have a construction of "this/that single one unit of something is something." The particle word **de** is used to mark an attribute of a thing; thus the phrases "hong2de" or "huang2de" mean "that which has a red quality" or "that which has a yellow quality." Unlike English, Chinese can mark the

topic concept as part of a process with the becoming particle "le." So it is possible to say "That which has become my turn" or "That which has become red." Chinese, then, identifies objects as members of categories, or of having just changed to a member of that category with the marker "le."

The order function in Chinese stands in contrast to its application in the English game. Its frequent use in the Chinese game complemented the mother's frequent use of the evaluating function. Here the order function refers to a direct command. The order function is instrumental: it specifies an action to be complied with. The table below is somewhat different from the paraphrase tables used so far. With the greater variety of verb forms indicated by the ordering function, it may be more helpful to list a sample of the forty-seven commands recorded, rather than trying to identify a single concept frame.

Table 4.22
Sample of commands featured in the ordering function

Ordering Command	**Literal Translation (More standard translation in parentheses)**
Ni3 kan4 hao3 ya	You look good. (Look carefully.)
Ni3 ba3 ta1 fang4fang4 ping2	You grasp that [block] place it even. (Place it evenly.)
Gei3 Ma1ma ya	Give Mama. (Give it to me.)
Na2 liang2ge4	Take up two units of blocks. (Take two blocks.)
Guo4lai2 yi1dian3	Over come one degree. (Move over here.)
Ni3 bie2 yao2 zhe4ge4 zhuo1zi	You not shake this table unit. (Don't shake the table.)
San1ge4 yi1qi3 fang4 ya	Three units of blocks one together put. (Put the three blocks together.)
Guo4qu4	Over go. (Move over.)
Fang4 zai4 zhe4li3	Put at here. (Put it here.)

In Chinese, as the command samples suggest, an order is an action defined by its direction, as in "guo4lai2" or "fang4zai4 zhe4li," or by its manner, as in "fang4fang4 ping2." An order may also be specified as to which person may receive that action: "Gei3 Ma1ma ya." Chinese parents refer to themselves in the third person when speaking with children. Like the evaluating function, the ordering function plays a regulatory role: regulating the actions of

others. The mother evoked desired responses from the daughter through specification of objects units that have direction and consequences.

The permit function is one of discrimination. There is a discrimination of objects against a background of expected consequences. The form class for this function is small, including only about four words; still, these words were applied in fifty-three utterances. Whereas in evaluation the mother judged the daughter's performance, in the permitting function the mother sets limits. At one point in the tape the mother was heard checking the rules. The permit function lends association to an authority outside the person, in this case the rulebook. Table 23 illustrates the permit function.

Table 4.23
Paraphrase table for the Chinese permit function.

Concept Frame: Ni3 X zuo4.

Transcript Samples	Form Class Paraphrases	
Ni3 zhi3neng2 na2 lan2de. (You can only take a blue block.) Bu4neng2 na2 na4ge4. (You can't take that.) Ni3 ke3yi3 na2 bian1shang4 de. (You can take the one on top.) Wo3 ke3yi3 na2 liang2ge. (You can take two.)	Ke3yi3 (can) Zhi3neng2 (possible) Bu4 neng2 (not possible) Zhi3hao3 (Only)	Zuo. (do something)
	Alternate Paraphrases	
	Ke3yi3	na2 (take) chi1 (eat) xie3 (write) shou1 (speak)

		zou3 (leave, go)

The Chinese permit function suggests the English modal *can*. Through the application of the permit function, the speaker can talk about limits through what can and can not be done. The permit function is a discrimination of what is possible, what is allowable, and what is only the case. Further, it says what can or is possible according to a set of procedures, guidelines, criteria, or rules understood by the players.

The reporting function perceives. It talks of an event experienced, the speech a result of interaction with the event. In the Jenga (1995) game those events were typically a die roll, the result immediately called out by mother and daughter. Where the choice function offered an alternative in conjunction with the die roll event, the reporting function only expressed the perception of the event. Many of the ninety-eight utterances coded as the reporting function were die roll results; on tape mother and daughter often called out together the resulting upturned die face. Consequently, many of the reporting utterances are a single word: "wild," "reverse," or "any two."

Other reporting utterances, though, report on changes or happenings that appeared as the game progressed. Chinese does not have a past tense; time is typically marked with adverbs. However, Chinese can mark an indefinite time in the past with guo4, or mark a change in aspect, a change from not experiencing a condition to experiencing one, with "le." Chinese, for example, say during a meal "Chi1 hao3 le" or "eat has become okay" for the English "I'm full." But the expression does not mean the speaker may not eat some more. The meaning with "le" is fluid: it points at changes and process. Many of the verbs for the reporting function marked a similar conceptual frame.

Table 4.24
Paraphrase table for the Chinese reporting function.

Concept Frame: X le.

Transcript Samples	Form Class Paraphrases	
Lun2 dao4 ni3 le (The dice is now yours.)	Hao3 (okay)	
Ta1 yi3jing1 yao2 le. (The tower has started shaking.)	Cuo4 (wrong)	le
You4 shi4 Ma1ma le. (It has become mother's again.)	Yao2 (shaking)	
	Na2 (take)	

	Alternate Paraphrases	
	Ta1 (He or she)	Chi1 le. (has eaten) Zuo4hao3 le. (has finished) Lai2 le. (has come) Fang4hao3 le. (has put something down) Dui4 le. (has been correct)

As the table shows, verbs and many adjectives may take le to indicate such changes, not in the sense of the tense in English, but as part of a process of related events. The particle le simply marks a change in quality, as with "cuo4 le" for wrong, or "hao3 le" for correct. Even a turn quality may be marked this way, a turn reported as "ni3 le" or reported as "has become yours."

Functions and conceptual frames for the English gaming

We now turn to the English conceptual frames. As stated, the more frequent English functions included the following: directing, explaining, identifying, informing, permitting, and reporting. As these utterances were the more frequent ones, we present them here toward illustrating the more frequent English conceptual frames. . In brief, much of the perception and thinking surrounding the English Jenga (1995) game revolved around the conceptual frames presented here.

Much of the management of the English game activity was administered through the directing function. The father applied the directing function toward designating the turns taken for rolling the dice. Table 25 presents the conceptual frame for the directing function, as applied to turn taking.

Table 4.25
English paraphrase table: Directing turns.

Concept Frame: Your X.

Transcript Samples	Form Class Paraphrases	
Your turn. All right, your turn. My turn.	Your	Turn Throw Roll Move Try

	Alternate Paraphrases	
	Take Loose Miss End Start Finish Hold Steal	a turn

We may take a turn here as an event in time. It is an event with a start and a finish, and as an object, too, a turn can be held, stolen, taken, or even wanted. Directing a turn, then, administers an event-object that belongs to a player.

The second key function, that of identifying, is a categorizing function: it assigns an object to a group or class of objects. In English this function is frequently applied through the copula or BE verb: *is, are, am.* Thus, as the following paraphrase table indicates, the identifying function for this game occurred as "this is an X type/kind of game."

Table 4.26
English paraphrase table: Identifying games

Concept Frame: This game is an Xing game.

Transcript Samples	Form Class Paraphrases	
It's not a winning game. It's a boring game.	This game is	Winning Boring Exciting Tiring
	Alternate Paraphrases	
	Is Seems to be Has the appearance of Takes the form of Has the features of	A winning game.

From the paraphrases, we see identifying as a conceptual act of assigning a quality through the active participle; the presence of the quality includes the game as a kind of activity. The BE verb hints at the assigning of a form, quality, feature, appearance, or aspect. The features identify its membership.

The father as researcher and teacher was most apparent in the explaining function. This is where the father played more of a teacher role than parenting one. Of the Chinese games, only

nine explaining functions were recorded, out of a total of 588 utterances. Playing this role, the father attempted to elicit how and why answers to the daughter's activity, and to the standards of the game procedures. Typically, explanations require reasons marked with "because" or in spoken English "cause." Here, though, a generalizing phrase was attached to the causal marker, marking explanations as a kind of generalization. The generalization markers recorded here include these words: *always*, *never*, and *everyone*.

Table 4.27
English paraphrase table: Explaining game actions.

Concept Frame: Because it's always X.

Transcript Samples	Form Class Paraphrases	
Cause the blue one always goes first. Cause everyone pulls a wild. Cause I never played it before. That's cause it's white. Because you're supposed to see if you win two times.	Always Never Usually Frequently It is It's supposed to be	this way
	Alternate Paraphrases	
	Pulls Plays Is Wins Goes Looks	This way

In looking at explaining game actions, we see such generalizing terms as *always* and *never*. Another option is with *everyone*. The daughter answered the father's requests for explanation, then, as actions such as playing and pulling and winning and moving that take place all the time, nearly all the time, or are done by everyone. On one occasion, the daughter stated that the generalization took place on a condition: that the player win two times. That statement may read as "you always win on the condition that you win a second time" or on condition that you have already won the previous game. In short, explaining game actions generalizes those actions as the way things always are, or the way everyone does it.

The informing function expresses personal states. The most frequent verb with the informing function is the word "know." To this function are also included verbs of perception and desire. What unites these verbs is their focus of attention: the first person or "I." Thus the informing function informs us about personal understanding, feeling, and perception. The

function applies these personal states, however, through the public forms of the English language.

Table 4.28
English paraphrase table: Informing what's known.

Concept Frame: I know X

Transcript Samples	Form Class Paraphrases	
I already know. [about the game] I don't know. [about the tower] I know how. [to use the blocks]	I know	The game. The procedure. How to play. About the game. About the tower. Why we do that. The topic.
	Alternate Paraphrases	
	I know I understand I have knowledge of I can play I have learned I am able to do I am acquainted with	The game.

Therefore, informing what is known about the games or the blocks refers to knowing as an understanding of the status of the game or the game tower, based on previous experience. Knowing is paraphrasable as learning, getting familiar or acquainted with, and having the capability of performing.

Often we attach the preposition *about* to knowing: knowing about something. In the same sense, we may substitute knowing with talking, wondering, feeling, and thinking. All are linked to the relationship *about*. To this group we may include memory. To sum up, this form class describes knowing as an activity that combines learning, memory, experience. Added to this is the idea of knowing as a skill or procedure, a series of actions that can be performed.

The verb know is but one means of applying the informing function. Personal states during the game were also expressed through these verbs: *like*, *see*, *show*, and *wonder*. With *know*, these verbs make up an identifying function class that relays a game player's personal states during the game activity. Through this function speaking and thinking activity combine.

The modal *can* marks the permit function. Again, the father's role as novice player is revealed through the permit function. The samples recorded in the following paraphrase table were all produced by the daughter; the father's limited understanding of the rules of the game lead to a number of requests about what could and could not be done during the game play.

Table 4.29
English paraphrase table: Permitting game acts

Concept Frame: You can X.

Transcript Samples	Form Class Paraphrases	
It can be a blue or a yellow. You can go first. It can be whatever color you want. You can put them in how you want. You can get whatever color you want. You can change hands. You can't use two hands at a time.	You can	Do whatever block. Not use two hands. Not get this part. Get whatever color. Take the blocks here. Take a turn. Change hands. Put the blocks in however you want.
	Alternate Paraphrases	
	Can May Are permitted to Are allowed The rules let you The game lets you	Do something.

The use of *can* is in discrimination. As the grammar reveals through *can*, the act of permitting something discriminates what actions are part of the game activity, versus what actions are not part of the game activity. In this case, the use of two hands and getting or taking certain parts from the tower are not permitted. They are not part of the game. The grammar of *can* is also found with yes and no questions. One can or can not perform a certain action. *Can* determines certain boundaries, which are discriminated from the rules of the game.

The final English function, and as with the Chinese game the most frequently used function, is that of reporting. For the English reporting, like the Chinese reporting, there were two general applications of the reporting function. The first was with the die roll, with parent and child calling out what the die face turned up. Both parties call up immediately what turns up as they perceive it. The other use was in the observation of gaming events: the performance of a single act. For the English grammar, though, most of the reporting is through the past tense, the event already past by the time the words are spoken by the observer.

Table 4.30
English paraphrase table: Reporting events

Concept Frame: You Xed something.

Transcript Samples	Form Class Paraphrases	
I got a loose one. I picked a blue one. You said it's not a winning game. But that's what you just did. I got the easy one. I took a end. That worked.	You picked You got You said You took You placed You did You reported You witnessed You observed You noticed	Something.
	Alternate Paraphrases	
	Something	Happened. Worked. Took place. Caught your attention.

By application of the reporting function, a player is witness to some event during the game. Often that event was the die roll, but at other times an event took place that garnered the attention of the speaker, an event that took place in a defined period of time and that produced some kind of a change. Someone, for example, picked a block, or said something, or placed a block in a risky position on the tower. The concept frame indicates an event that happened before the present, but completed in a specified time, producing a change. The concept further indicates that we react to that change in some manner, often through speaking or narrating about the change that took place.

Summary of the form classes

Concepts connected to the game artifacts and events were framed through the speech functions. Naturally, with the over one thousand substantive utterances recorded for the study, a complete account of each utterance within its frame would be too bulky an analysis. More importantly, it would miss what was revealed through the analysis. The study demonstrated regular application of functions and their conceptual frames. The correspondence of function and linguistic form was consistent throughout the frames.

The first Chinese form class presented was that of the attribute choice. The attribute choice took the concept frame of "huo4zhe3 X" and presented a second attribute for the die

roller's attention. The negative evaluation form class, featuring "bu4 X," presented judgements associated with incorrect playing actions. The negative evaluation class played a regulatory role in the daughter's actions. The form class of identifying attributes followed: "zhe4/na4 ge4 shi4 X." The class was usually applied to the game blocks and the game tower. Defining the notion of limits or parameters within which a game block could be used, this took place through the permitting action form class: "Ni3 X zuo4." Like the negative evaluative form class, this one provided the daughter with criteria as to what was or was not an acceptable action during play.

Perhaps the more marked difference in the form classes was through the Chinese use of the particle le. **Le** marks a new event or situation, from what is not or has not previously been experience, to what is now experienced. The form class "X le" recorded common changes perceived throughout the game, as with "cuo4le" or wrong, as stated during the movement of a block, or "ni3 le" for a change in turn, or "you4 shi4 ma1ma le" for a repeated event.

Among the English form classes presented, the first was that of possession for directing a turn. The class may be thought of as turn possession: "your X." A larger form class resulted from the daughter's description of the game, with the form class game names: "It's a X-ing game." The *–ing* participle identified the game according to different active attributes, such as boring or winning. The "always form class," for the generalized reasons of the explaining functions, associated game actions with a single concept: "always that way." The informing function featured the knowing form class, in the form of "I X the game." Other form classes were possible, too, under the informing code, with form classes associated with seeing, showing, and wondering.

Unlike the fluid changes marked with **le**, English reported events as discrete events. It would have been more accurate to divide Table 30 (see page 111), on Reporting Events, into two tables, for English reports these discrete acts in time with both regular and irregular forms, only the regular forms acceptable with *–ed*. The discrete events reported for the Jenga game featured reports on moving the blocks. So the form class may be called manipulating tower blocks.

Conclusion for the results chapter

Emphasized throughout the chapter were two roles. The first was that of the mother, who played the game with her daughter from an expert-novice stance. The mother instructed her in the procedures and rules of the game. In contrast, the father played the game from a reverse relationship: novice-expert. The father knew little about the game, and his effort to discern the rules for play, at times combined with his behavior as a teacher-researcher, lead to a different context from that of the Chinese game. The results reported here should be considered with attention to these relationships and their subsequent interactions.

From these roles two different kinds of games were played. The first was a game dominated by one parent closely directing, monitoring, and regulating her daughter's performance. Part of this effort was through the form class negative evaluation, or the permitting function with **ke3yi3**. Throughout the game, the Chinese concepts featured attributes and changes.

The English game was a more shared activity, with the daughter producing more talk than the father. Throughout the game play the father requested information and explanations on

what the daughter had previously learned from her mother. Yet like the English game, much of the talk centered on the dice rolls by which the game events were determined. Talk in the English game featured more telling of personal states and generalizations on standard game actions. The speaking activity progressed with the concepts of ability and discrete events in time.

Of the research questions listed on page eight in the opening chapter, the first two were answered here only in a general sense. The study described frames loosely. While few structural differences were reported among frames across languages, frames did differ in kind. Frame functions differed in response to the different role relationships enacted by each parent to the daughter. With these role relationships, too, the conceptual frames reported differed across languages, but conceptual frame differences were more consistent than with the unit of the frame itself. Frame utterances, functions, and conceptual frames fused with game topics in more regular performances of languaculture.

CHAPTER V

Discussion

The frames described in this study's speaking activity only weakly supported the construct of an activity frame. Agar's (1994) frame notion did not appear as clearly marked as expected. The anticipated function structures showed only uniform functions for the first two or three utterances in the frame sequence, then expanded with a mix of different functions. Key to activity recorded in this study were the different role relationships performed by each parent through the medium of the language spoken. At best, only a weak comparison could be made here of the games played across languages, for the different role relationships performed by the parents led to altered contexts. This chapter summarizes the results of the study, and reviews their potential applications to educational practice.

A review of the research questions

As listed on page four of the opening chapter, the following research questions were raised for this study:

(1) What are the activity frames patterned by the Chinese and English languacultures?

(2) How do the frames differ between those languages?

(3) What are the conceptual frames patterned by the Chinese and English languacultures?

(4) How do the conceptual frames differ between those languages?

The answers to those questions are summarized below.

Four speaking activity frames were discovered for the Chinese Jenga games. Those frames included the following: describing, directing, informing, and reporting. Of those four, the most numerous were the directing frames, with the reporting frames the second most frequent. The games with the Chinese mother were generally spent on the mother directing and instructing the daughter on how to play the game. Of the daughter's speech, most of it was in reporting die roll results and the status of different objects attended to during game play, such as the tower and the colored blocks.

In contrast, the English games featured confirming, informing, recommending, reporting, and requesting frames. Of these, most of the time was spent on reporting changes in the activity of the game, such as the die rolls or the movement of the blocks in different tower positions. Informing and recommending frames made up most of the remaining speaking activity, due to the father's attempt at learning more about the game from the daughter.

The difference between the way the Chinese game was played, versus that of the English game, was due to the roles played by each parent. The Chinese game featured a parent who had

played the game previously, and so took an expert to novice role toward her child. The mother directed the child according to standards and procedures that she relied on from the game rulebook; at least once during the game the mother requested the rulebook to check on a procedure. In contrast, the father was in a reverse position: he played the game as a novice player himself. His reversed role, combined with the possibility of teacher-researcher roles creeping into his play, fostered gaming activity punctuated with questions, confirmations, and requests.

The Chinese conceptual frames followed the functions applied in the speaking activity. These frames featured the use of the particle **le** for reporting changes in activity and adjective features, the permitting action conceptual frame with **ke3yi3, bu4neng2**, and **zhi3hao3**, and the identifying frame with **shi4**. Another frequent frame was that of the command frame, highlighted by a verb followed and its directional or manner complement. In summary, the Chinese language framed game objects as units of objects, with changing attributes and directions. It frequently evaluated those objects with the marked **hao3** for good or okay, or with descriptions of ability or permission, in relation to the rules of the game.

The English game framed game concepts as objects that could be possessed, take on an appearance, or generalized in reference to what always or never happened with that object. English also looked at different objects in terms of ability and permission, frequently with requests starting with the modal word can: "You can X." Perhaps the strongest difference was with the English past tense, framing event actions with the past tense marker *-ed*: "Something Xed." Whereas Chinese showed change and acquisition of object features, English placed those objects in discrete, definable past events.

Another similarity between the two languages was in the categorizing of events or objects with an existence verb, in Chinese **shi4** and in English BE. Both languages identified objects as members of classes, most frequently with the dice rolls. English also used BE for descriptions: "Something BE adjective (e.g. Something is red.)." Chinese described by combining an object with its adjective, as in "tower high" or "block loose." Besides these concept frames, the use of the particle *le* could be added for a change frame: **Ta1 gao1 le** for "Tower has become (-ing) tall. " Taking the second example: "zhe4ge4 song1 le" or "Block has become (-ing) loose. "

In conclusion, the first two questions are answered here with caution. Coding of frames depended on the first two or three functions in each frame, with the rest of the frames featuring less utterance uniformity than the opening sequence. What was discovered was a loose configuration of functions all talking about a single theme or topic. The second two research questions showed greater consistency. Frame functions were applied with consistent use of one or two grammatical forms, the forms framing the game topic concepts.

Table 5.1
Summary of the research findings

Research Question	Answers Described in the Study
What kinds of framed activities were found?	For Chinese directing, reporting, describing, informing episodes of activity.

	For English reporting, informing, recommending, and requesting. With some confirming episodes of activity.
How did those frames differ?	The frames differed in class kind and proportion of talk. Few differences in organization (e.g. in Chinese the choice following the dice roll).
What conceptual frames were found?	In Chinese the main conceptual frames: change with *le*, permission with *ke3yi3*, identification with *shi4*, evaluation with *hao3*. In English past events with -ed, permission and requests with can, possession of turns, and identification with BE.
How did the concept frames differ?	The main difference in marking activity as either a change or single event in the past; a second difference in the adjective verb forms, in which an adjective describes its own attribute (somewhat like *attributing*) or change. English relies on the sense of objects with its predication.

The parent-researcher question

The parent-researcher faces the same dilemma as the practitioner-researcher. Each has unique opportunities before them to witness and record instances of behavior often not easily accessible to the professional researcher. Through their duties as parent or teacher or administrator, they face frequent chances to observe how children think and act.

In recording their observations, they also face a strong challenge: objectivity. To render their work accessible to their peers, they must face the same standards of rigor as the professional researcher. Still, meeting the standards of rigor and objectivity necessary for effective research is difficult, for the parent-researcher, especially, is an integral part of the social system he or she tries to observe.

As was discussed in the first chapter, there is a real danger of slipping out of the parent role into a researcher one. To some degree in this study, this did occur. The greater frequency of questions for informing and confirming functions in the English game indicate that at least at

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some points in the English game, the researcher slipped from playing a game with his daughter into a quasi-interview mode. It is also possible, too, that the researcher at times took on a teaching-like stance.

With a strong threat to the validity of the codes applied to the substantive utterances, the researcher performed a further test after completion of the study. The researcher triangulated portions of the substantive utterances collected with different coding systems to determine if the same conclusions could be reached. The researcher took portions of utterances in Chinese (N = 100 utterances) and in English (N = 100) and coded them according to two alternate coding systems already discussed in this work: that of Halliday's (1975) meta-functions and Skinner's (1957) functions of verbal behavior.

We begin with the list of Halliday's codes first. As first noted in the methodology section, in chapter three, Halliday's (1975) system was originally applied in the pilot study, the results suggesting no real difference between the two languages in terms of Halliday's functions. That study, however, only covered a single game; the results reported for this test included 100 utterances taken from throughout the entire list of substantive utterances. Questions were omitted from the check, leaving the total number of Chinese utterances at 85, and the English ones at 76. The reason for omitting the question function was that it was not clear as to how Halliday (1976) approached the use of questions; at least for his early work, he focused on the kinds of substantive utterances covered in this study.

As stated in chapter three, Halliday (1975) applies seven meta-functions which he states as present in both child and adult forms of speech, the functions applied in varying combinations for adult speech. Those functions are listed on page sixty-three. Table 2 lists recoded sample utterances, for Chinese and English.

Table 5.2
Recoding samples according to Halliday.

	Chinese	**English**
Instrumental	2	1
Regulatory	32	18
Interactional	4	3
Personal	7	8
Heuristic	0	1
Imaginative	0	0
Informative	40	40
Totals	**85**	**71**

With the sample of utterances from both the beginning games, a middle game, and the final game of the tape, Halliday's (1975) functions suggests no difference between Chinese and English in terms of the informative function: both spent equal time talking about objects and events particular to the game. This agrees with the research findings of the study, too, for the reporting frames and functions were found most frequent here. Halliday's (1975) functions also suggest that Chinese did include substantially more talk on the regulatory function: nearly twice as much.

That would also agree with the findings of this study. In short, a recoding of samples from different parts of the games, according to Halliday's coding system, supports the results of the study.

We turn now to another system presented in this work. The system is that of Skinner's, explained on page forty-eight of the text. Like Halliday, Skinner (1957) is concerned with the functional application of not just language, but language in context. Table 3 presents a recoding of the same samples applied to Halliday's system, but according to Skinner's system of verbal behavior.

Table 5.3
Recoding with Skinner's functions

		Chinese	English
Mands			
	Requests	5	13
	Commands	23	14
	Questions	10	16
	Advice	5	4
	Warning	0	1
Tacts	Simple Tacts	57	47
	Metaphors	0	0
Intraverbal			
	Echoic	0	1
	Social formulas	0	4
	Totals	**100**	**100**

According to Skinner's (1957) system, most of the talk involved talk about things in the physical environment: the blocks, the tower, and the events surrounding them. Skinner's (1957) function for this is the tact. The Chinese shows more commands than the English does, but only about nine more. The recoding done with Skinner's (1957) taxonomy shows partial support for the study, in that it presents a similar proportion of talk on functions as that of the study.

This section reports an effort to triangulate the substantive utterances with two other coding systems. The effort was one of comparing multiple coding instruments to check the validity of this study, a study prone to the weaknesses of a parent-researcher working with his own daughter. The results of the triangulation confirmed the functions coded for the study. Yet the researcher does recognize that some of his play in the game was altered by his research concerns.

Revisiting Agar's frames

Agar (1994) includes in his text on languaculture many of the traditional concerns of anthropologists: restaurants, truck stops, and sales interactions. As an anthropologist Agar looks for recurrent sequences of activity, especially in ritual-like action. The idea of ritual helps here, for rituals refer to strictly designated action sequences. We would expect the functional configuration of a ritual to be not only easy to identify, but also easy to analyze along the methods used in this study. Rituals provide a kind of regularity that is easier to frame.

When we look into restaurants and car dealers, for example, we see framed activity that is tightly regular. For this study, the more ritual-like activity of the die roll and its responses demonstrated a more uniform frame than the other frames analyzed. In the sense of ritual, then, frames appear more discernible than in the play of the game recorded here. It may be possible that frames offer only weak explanations for less ritualized activity.

Mehan's (1979) study on classroom rituals discovered that a standard teacher-student speaking frame is that of initiation-reply-interaction. The speaking activity of the classroom is largely made up of that frame. As a ritual, this classroom frame comes across as more discernible than the kinds of activity recorded in this study.

The speaking activity of this study did show some organization. Agar (1994) suggests examining pauses and turn taking to uncover the organization behind a specified speaking activity. That was not done here for a single reason: the game. Many of the pauses recorded on the tape, sometimes more that a few minutes in length, were due to such activities as assembling the tower after it collapsed, or waiting to take ones turn, or even in considering the best location for placement of a colored block. The pauses and turns here, then, were more attributable to the game than ordinary conversation.

Revisiting Agar's (1994) notion of frames calls for some revision. A description of a frame along other dimensions, besides the topic dimension, may be warranted. Future studies may want to pursue a revised understanding of frames to allow frames to be applicable to the less ritualistic kinds of activity like that of the game playing recorded on the tape. Certainly, frames could be useful in studying the kinds of more ritualistic speaking activity of the classroom.

Teaching in three dimensions

The theoretical controversies highlighted in the second chapter point to different dimensions of speaking activity. Chomsky's (1966) Cartesian linguistics has highlighted the first dimension of speaking activity: grammatical patterns. Chomsky's (1966) work points to regularity and symmetry of grammatical patterns as produced by ideal speakers in speech communities. It is the dimension of form.

Hymes (1974) proposed his ethnography of speaking to highlight the communicative value of those grammatical forms. Austin's (1965) proposal of the speech act, Searle's (1971) investigation of the speech act, and Halliday's (1975) study of how a child learns how to mean, have all contributed to the second dimension: the communicative dimension. What all of these writers agree on is that the communicative dimension is a functional one. There is a purpose to the performance of the grammar. Accordingly, this second dimension is that of the function.

Suggested here is a third dimension. That is the dimension of conceptual contents. It is a dimension that some language educators have already begun to explore. Hunston, Francis, and Manning (1997), for instance, provide a number of examples of word classes. They point out to language educators: "firstly, that all words can be described in terms of patterns; secondly, that words which share patterns also share meanings" (1997, p. 209).

To illustrate their proposal, the authors present a number of verb-form classes. One example is that of the verbs meaning to make a noise: "bark, bellow, hiss, jeer, growl, and shout" (1997, p. 211). Another form class listed is that of the verbs indicating a numerical value: "average out, retail, run, work out" (1997, p. 212). The authors hint at a conceptual organization combining word classes with linguistic forms.

When we look back to the bilingual education controversy in the second chapter, we see a controversy of dimensions. The popular ESL solution stands as a solution of one dimension: the grammatical one. In recent years ESL classrooms have included the second dimension; the shift in language education since the 1970's, with the renewed emphasis on language as communication, has revived the second dimension in language education. Functions, communication, and proficiency have directed attention to the second dimension in language education.

But looking back to Cummins' (1986) model of language proficiency on page twenty-eight, it would appear that even attention to the second dimension has not succeeded in getting bilingual students out of the upper quadrant of language proficiency. As stated in the second chapter, the challenge of effective bilingual education is to get students to use language contexts that are cognitively demanding and context reduced. The difficult shift to the lower left corner, the zone of academic language, features demands on language and thinking that require concentration on conceptual forms.

Implications of the study

The child portrayed in this study has demonstrated how a bilingual child can participate in an activity through two languacultures. The child presented here performed a game activity through both Chinese and English languacultures. What she has taught us is that she has the ability to construct the same experience through two different social activities and conceptual systems.

While English directs her attention to game blocks as discrete objects and events, Chinese presents the blocks as changing states and attributes. She has the ability to approach this gaming experience, and no doubt other experiences, through two lenses. Through each lens she sees objects and events with different salient features, background assumptions, and expectations on how to interact with objects and people.

She may, for example, interact through English to a game block as being an object having different features to attend to, to act on it within well-defined time periods. In Chinese she may attend to the same features as impermanent features not of the object as a thing, but as an event. And in Chinese she may also interact with a game block according well-established rules of permissibility, whereas in English she may treat the same block in terms of possibility.

No doubt this dual competency of bilinguals offers an opportunity for educators. The kind of cognitive flexibility implied here points to possible routes of inference and

comprehension among bilingual children that monolingual students may not as easily orient themselves to. This should encourage educators to avoid traditional teacher dominated instructional styles in their classrooms, and treat bilingual students as valuable resources. More talk about how a bilingual child sees or knows lesson contents through both languages may prove to be a helpful activity for both the bilingual child and others in the classroom. Getting a bilingual child to articulate, to make more explicit through their other lens, may not only aid lesson comprehension, but also help develop skills in English.

Though the author did not check for any transfer from the mother's instructions to the daughter's answers to her father about game rules and procedures, the author suspects through observation that transfer did take place. Future research is planned for determining how such a transfer may take place. Especially, future research is needed to look into how the daughter codes in English conceptual frames the contents of her mother's instructions on the play of the game. With the potential bene. . of transfer, aiding bilingual children to make more explicit contents learned in both languages, and finding multiple forms of expression—such as verbal or visual or play—would only seem to strengthen the transfer of skills across languages.

Still, there is another side to the dual ability of bilingual children. Whereas cognitive flexibility could inherently be a part of the mind of a bilingual child, much of what the bilingual child does know is acquired through set modes of interaction passed on through languaculture. The bilingual learner as a resource is not as easily tapped into, especially when teachers tend to rely on well-established instructional styles. Tapping into the bilingual flexibility demands effort on the part of the teacher. The kinds of verbalization just proposed often take place within well-defined settings with culturally specific strategies for working within those settings. Native American children, for example, may more easily verbalize in small groups, while Chinese children may find it easier to recite directly to a teacher.

Heath's (1982) work describes how different groups of children, in her case one group white middle class, the other black working class, carry to school standard texts by which they orient themselves to experience. No doubt the Chinese text produced in this study was an authoritative text on how the game should be played according to a game canon. The English text described here was that of a socially interactive sharing of information among near equals. Yet this study was but a single case. Heath (1983) reminds us that children begin organizing texts from the crib. Had Heath studied the bilingual child of this study over a decade, she might have found a frequently referred to text organizing the child's experience. But unlike many bilingual children, the child studied in this work speaks English as her dominant language, and so her text at school would not mismatch with her teachers' management of classroom activity. In contrast, many language minority children who rely on their native language also rely on modes of learning and interacting not expected by their teachers.

To sum up the educational implications reviewed here, we count three possibilities: flexibility, interaction, texts. We can expect bilingual children to manage their experience not in the sense of always referring to one standard, as—to take an analogy—a person may look up a word in a dictionary to seek *the* single fixed definition of a word. Cummins proposes that bilinguals have a common underlying proficiency (Crawford, 1995), that verbal skills and abilities are grounded a unified domain of thought operations. Communicating with this proficiency is more easily conducted through the native language, as practiced over longer exposure through time, but competencies in literacy and symbolic thinking do translate into

specific languages. Again, more practice communicating this proficiency through the second language only aids the transfer of skills. But attention to native language modes of interaction in communication is necessary for creating effective classroom climates for that transfer to occur. We are reminded here as well that there are modes of interaction with people, in acquiring information through the languacultures described by Agar (1994), and there are modes of interaction with concepts themselves, through the texts. Bilinguals often interact with texts and people in ways that teachers do not expect.

Directions for future research

Future lines of inquiry are proposed here, one of which would be to examine what transferred from the mother's speech during the Chinese game to the daughter's speech during the English game. The goal would be to describe what information is conveyed to the daughter during the Chinese game, through the mother's instructions on game rules and evaluations of gaming behavior, then to identify how some of those contents may re-appear when the daughter speaks about game rules and game procedures to the father in English. Such an effort would work to establish how carry over may work from one language to another.

The paraphrasing tables presented in the results chapter are new and based on Wittgenstein's (1952) theory of family resemblances. The paraphrase tables indicate a means by which concepts may be illuminated through form classes and conceptual frames. Wittgenstein's notion of language games is largely a theory of how concepts are applied in daily speech. The tables here should be refined toward conducting future work with key concepts that arise in speech situations, particularly in the classroom. Presenting and substituting cases along the lines suggested by Wittgenstein (1952) may help in identifying and comparing conceptual models across languages.

Certainly, the greatest need for future research is with other bilingual children. The study presented here was exploratory. More children are needed in a variety of settings: at home, at school, and interacting with their peers, toward establishing a range of contexts by which different kinds of frames can be described. Therefore, future work with other children is critical for describing the use of languaculture at home and school for language minority children.

Final conclusion

This study offered an ethnographic answer to the challenge issued by bilingual education researcher Hakuta (1990), who calls for more basic research on the nature of the bilingual mind. Hakuta (1990) points to the need for basic research looking at the bilingual mind not as a dual system of two languages, but as a complex landscape of linguistic forms, conceptual domains, cultural knowledge, and acquired skills. If educators are to successfully navigate this landscape, argues Hakuta (1990), toward providing more effective instruction to the growing numbers of bilingual students in our schools, we need to examine how the components of this landscape interact. Frames offer one possibility for mapping out this terrain.

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APPENDIX A

FUNCTION LIST
List of functions used the Chinese Game

Function Word	Description	Function Grammar
Advise	To relay a necessary course of action	Ying2gai1
Affirm	To agree with	Dui4
Assert	To relay personal view or understanding or opinion	Xiang3 Gao4su4
Certain	To express confidence over information.	Yi3ding4 Ken3ding4
Check	To monitor or elicit a monitoring action.	Kan4kan4
Choice	To present an 'or' conjunction.	Huo4zhe
Compare	To relay a perceptual criteria	Xiang4
Complete	To express an act as not yet finished or already done.	Yi3jing1 Hai2
Condition	To link and action to a previous state of affairs	Hua4 Ru2guo3
Confirm	To establish certainty in understanding	Zhi1dao4 ma?
Contrast	To present a 'but' conjunction.	Dan4shi4
Define	To say what something is.	Shi4
Deny	To oppose or negate a previous remark.	Bu4
Describe	To direct perception to object or event features	de
Desire	A need to act.	Yao4
Direct	To arrange an event or activity	
Emphasis	To highlight a particular word in an utterance	Jiu4
Explain	To give a reason for, to say how	Yin1wei1
Evaluate	To assign a value to a criteria or feature	Hao3 Bu4

Generalize	To refer to a recurrent or habitual action	
Identify	To categorize an object or event	Shi4
Inform	To relay personal needs and interests	Gao4su4 Jue2de4
Locate	To give the spatial position of an object	Zhe4li3 Na4li3
Obligate	To refer to a standard action	
Order	To give a direct command or instruction	Imperative mood
Permit	To identify what actions can be performed	Ke3yi3 Bu4hao3
Possible	To express states of action	Neng2
Predict	To describe a possible future action	Yao4
Recommend	To urge a specific course of action	
Report	To perceive a state of affairs	le
Result	To describe a consequence	
Satisfaction	To express pleasure in an action or state of affairs	Dou1
Sequence	To order events or actions in time	Ran2hou4 De shi2hou4
Set	To arrange a pattern of objects	Zai4
Suggest	To offer a course of action to be agree upon	Hao3 bu4 hao3?
Warn	To strongly advise against an action.	Cuo4le Bu4xing2

Adopted from D.A. Wilkins (1983). Notional Syllabuses. Oxford: Oxford University Press
J.L. Austin (1965). How to do things with words. New York: Oxford University Press

APPENDIX B

FUNCTION LIST
List of functions for the English Game

Function Word	Description	Function Grammar
Advise	To relay a necessary course of action	Must, had better
Affirm	To agree with	Yes
Annoy	To express irritation toward an action or state	Do
Assert	To relay personal view or understanding or opinion	Verbs think and say
Choice	To present an 'or' conjunction	Or
Compare	To relay a perceptual criteria	Compare with all, more, like
Condition	To link and action to a previous state of affairs	If
Confirm	To establish certainty in understanding	Sentences beginning with "so"
Contrast	To present a 'but' conjunction	But
Define		
Deny	To oppose or negate a previous remark	No
Describe	To direct perception to object or event features	Verb: BE
Direct	To arrange an event or activity	Verbs take, do
Emphasis	To highlight a particular word in an utterance	Strong intonation on verbs say or tell
Explain	To give a reason for, to say how	'cause
Evaluate	To assign a value to a criteria or feature	Adjectives: good, better
Generalize	To refer to a recurrent or habitual action	Frequency words: always
Identify	To categorize an object or event	BE verb
Inform	To relay personal needs and interests	Say, tell

Locate	To give the spatial position of an object	Here, there
Obligate	To refer to a standard action	Supposed to, should
Order	To give a direct command or instruction	Imperative mood
Permit	To identify what actions can be performed	Use of can & allow
Possible	To express states of action	Modals: could can, maybe
Predict	To describe a possible future action	Future verbs or their negatives
Reason	To identify causes for an action or state of affairs	Might have, could have, should have
Recommend	To urge a specific course of action	Should, supposed to
Report	To perceive a state of affairs	
Request	To ask for an object or course of action	Can, could, how about
Result	To describe a consequence	With then
Satisfaction	To express pleasure in an action or state of affairs	Quantifiers all, most
Set	To arrange a pattern of objects	BE + pattern
Suggest	To offer a course of action to be agree upon	Let's, How about

Adopted from D.A. Wilkins (1983) Notional Syllabuses. Oxford: Oxford University Press
J.L. Austin (1965) How to do things with words. New York: Oxford University Press

Vita

Thomas Nowalk has been a teacher of English to speakers of other languages for over fourteen years. For six of those years he taught English as a foreign language in China and Japan. While in China he taught academic English skills to university students in the cities of Beijing and Wuxi. He also spent half a year teaching general conversation and business English to managers and engineers in Nagoya, Japan. Thomas later returned to China to participate in a training program for the Portman Shanghai Hotel in Shanghai, China, where he helped design and administrate an English training program for the over 1,000 staff of the hotel and its surrounding complex. Since returning to the United States he has taught academic English skills to international students at universities in Virginia, including Radford University and Virginia Polytechnic Institute and State University. He is currently teaching a technical writing course to international graduate students at Virginia Polytechnic.

Among his degrees are a master's in education from Radford University and the doctorate, for which this dissertation was written, from Virginia Polytechnic. His specialty is in teaching English to speakers to other languages, with experience in foreign language teaching and adult education. Besides current research in bilingualism, Thomas is also participating in the Virginia Adult Education Research Network, studying learner retention in an adult ESL program. He is currently teaching English classes for that program, the Montgomery County Adult Education Program in Virginia. Thomas' interests include studying bilingualism, engaging in practitioner research, and pursuing sociocultural and reflective methods for language education. In his spare time, he enjoys studying Chinese, practicing Tai Ji Chuan, and- as this study indicates- playing games with his two daughters.